United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Anchorage Fish and Wildlife Conservation Office
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Anchorage, Alaska 99507

In Reply Refer to:
FWS/IR11/AFWCO

March 8, 2021

Dr. James Balsiger
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National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

Ms. Susan Poulsom
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U.S. Environmental Protection Agency
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Subject: Biological Opinion on the Proposed Modification of the EPA General Permit AKG524000 for Offshore Seafood Processors in Alaska and on the NMFS Groundfish Fishery for the Gulf of Alaska, Bering Sea, and Aleutians Islands (*Consultation 07CAAN00-2020-F-0349*)

Dear Dr. Balsiger and Ms. Poulsom:

The U.S. Fish and Wildlife Service (USFWS) received requests from the National Oceanic Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), on May 29, 2020, and from the U.S. Environmental Protection Agency (EPA), on July 7, 2020, to reinitiate formal consultation, in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). The NMFS and EPA have requested consultation with USFWS on the potential effects of their proposed authorizations on the federally endangered short-tailed albatross (*Phoebastria albatrus*), the federally threatened spectacled eider (*Somateria fisheri*) and its designated critical habitat, and the federally threatened Alaska-breeding population of Steller's eider (*Polysticta stelleri*) and its designated critical habitat. The agencies have also requested our concurrence with their determination that the proposed actions may affect, but are not likely to adversely affect the federally threatened southwest Alaska distinct population segment of northern sea otter (*Enhydra lutris kenyoni,* referred to as sea otter) and its designated critical habitat.

The NMFS is reinitiating consultation to continue operations of the Fishery Management Plan for the Gulf of Alaska (GOA), Bering Sea, and Aleutians Islands (BSAI) groundfish fisheries to add the spectacled eider and its critical habitat and the Alaska-breeding population of Steller's eider and its critical habitat to the formal consultation. The EPA is reinitiating consultation on the National Pollutant Discharge Elimination System (NPDES) General Permit (GP) AKG52400 to add these species as well as additional activities of seasonal discharge of seafood processing effluent from fishery vessels within spectacled eider critical wintering habitat, Unit 5 located in the NMFS fisheries management regulatory zones 514 and 524, south of St. Lawrence Island, Alaska.

This document transmits the USFWS' biological opinion, enclosed, based on our review of the proposed authorizations of the NMFS for Fishery Management Plans for the GOA, BSAI, the State of Alaska parallel groundfish fisheries, and for NPDES GP AKG524000 for Offshore Seafood Processors in Alaska. We have based this biological opinion on the best available scientific and commercial information from a variety of sources including the biological assessment and evaluation prepared by the NMFS and EPA (NMFS 2020a; EPA 2020), published literature, agency and researchers' biological surveys and reports, and personal communication with species experts. We can make a record of this consultation available at the Anchorage Fish and Wildlife Conservation Office.

Consultation History

The USFWS has previously consulted with the NMFS and the EPA on actions related to ESA-listed species potentially affected by the Fishery Management Plans for the GOA and BSAI groundfish fisheries in the past. The following project history related to ESA-listed species begins in 2003 with a 2003 biological opinion, which provides context and history of consultations from 1983 to 2003 (USFWS 2003a).

History of consultations with the NMFS related to fisheries management

August 27, 2003: The USFWS provided a programmatic biological opinion to the NMFS on the effects of the GOA and BSAI groundfish fisheries on the short-tailed albatross and Steller's eider. The USFWS exempted the incidental take of up to two short-tailed albatross per year, or four in a 2-year period for the hook-and-line fishery, and an additional take of up to two short-tailed albatross for the trawl fishery (USFWS 2003a).

September 16, 2003: The USFWS provided a biological opinion to the NMFS on the effects of the total allowable catch-setting process for Fishery Management Plans for the GOA and BSAI groundfish fisheries on the short-tailed albatross and Steller's eider (USFWS 2003b).

Between 2010 and 2014: Observers documented six short-tailed albatross taken by the longline groundfish fishery in the Bering Sea. This observation could have been attributed to improvements in reporting due to substantial changes in the fishery observer program, which had improved observer data quality and increased observer coverage of vessels.

January 6, 2012: The Pacific Islands Fish and Wildlife Office provided a biological opinion to the NMFS on the effects of Hawaii-based pelagic longline fisheries, shallow set and deep set, operations in Hawaii (USFWS 2012a). The USFWS exempted take of up to three short-tailed albatross over a 5-year period in the Hawaii-based pelagic longline fisheries.

November 21, 2012: The Oregon Fish and Wildlife Office provided a biological opinion to the NMFS (USFWS 2012b). The USFWS exempted the incidental take of up to two short-tailed albatross over a 2-year period for the hook-and-line and the trawl fisheries.

July 10, 2013: The USFWS concurred with the determination of NMFS that the effects of the Federal and State parallel groundfish fisheries in the GOA and BSAI may affect, but are not likely to adversely affect the southwest distinct population segment of the northern sea otter or its federally designated critical habitat (USFWS 2013).

December 23, 2015: The USFWS issued a biological opinion on the effects of the Federal and State of Alaska parallel groundfish fisheries in the GOA and BSAI on the short-tailed albatross and exempted the incidental take of up to six short-tailed albatross in a 2-year period. The USFWS concurred with NMFS determination and the Alaska-breeding population of Steller's eider (USFWS 2015a).

September 12, 2017: The Oregon Fish and Wildlife Office provided a biological opinion to the NMFS (USFWS 2017a) for the continued operation of the Pacific Coast Groundfish Fishery. The USFWS exempted the incidental take of up to five (estimated) or one (observed) short-tailed albatross in a 2-year period.

November 12, 2019: The USFWS conducted informal consultation and concurred with the NMFS determination that the proposed action to allow pot gear in the commercial halibut fisheries may affect, but is not likely to adversely affect short-tailed albatross. The NMFS did not request consultation on the Steller's eider and critical habitat or the spectacled eider and critical habitat because they had no reason to believe the action may affect either species or their critical habitat (USFWS 2020a).

May 29, 2020: The USFWS received a request from the NMFS for reinitiation of the 2015 formal consultation on the fisheries as authorized by the GOA and BSAI Groundfish Fishery Management Plans and the parallel groundfish fisheries in State waters (USFWS 2015). The 2015 action only addressed take of short-tailed albatross. The NMFS is reinitiating consultation due to mortality issues related to the groundfish fisheries, October 10, 2019, and March 2, 2020.

- On October 10, 2019, at least 22 spectacled eiders were taken a by longline catcher-processor while transitioning from one location to another overnight. The mortality was discovered in the morning by NMFS-certified observer. The incident occurred near 64 degrees north latitude and west of 170 degrees west longitude, north of St. Lawrence Island, Alaska.
- On March 2, 2020, at least one Steller's eider was killed by colliding with the rigging of fishing vessel overnight. The vessel was not fishing at the time but was participating in the

Bering Sea pollock fishery. The incident occurred near 55 degrees north latitude and 162 degrees west longitude, near False Pass, Alaska.

History of consultations with EPA related to fisheries discharge

December 15, 2008: The USFWS concurred with the EPA's determination that the proposed NPDES GP AKG524000 for Offshore Seafood Processors may affect, but was not likely to adversely affect short-tailed albatross (USFWS 2008). This permit authorized shore-based processors to use vessels to carry offal at least 1 nautical mile (1.9 kilometers) from shore for discharge. The EPA required permittees to grind solid seafood processing wastes to less than 0.5 inch prior to discharge, allowing for maximum dispersion into the water column and a minimum amount of waste floating on the water surface.

October 23, 2009: The USFWS concurred with the EPA's determination that revising the action area analyzed in 2008 NPDES GP to waters greater than 3 nautical miles (5.6 kilometers) from shore may affect, but was not likely to adversely affect short-tailed albatross (USFWS 2009a). The 0.5-inch (1.27 centimeter) grind remained an EPA requirement for offal discharge greater than 3 nautical miles from shore for shore-based processors.

September 12, 2017: The USFWS in Newport, Oregon, provided a biological opinion to the EPA (USFWS 2017b). The EPA required permittees to grind solid seafood processing wastes to less than 0.5 inch (1.27 centimeters) prior to discharge. To account for the unknown difficult to detect mortality or injury associated with trawl gear, they estimated approximately 0.06 birds per year may be taken solely from trawl interactions, estimated at no more than six albatross in 100 years, or no more than one short-tailed albatross over a 10-year period.

October 02, 2018: The USFWS concurred with the EPA's determination that the proposed reissuance of the 2018 NPDES GP, which included removal of all grinding requirements included in previous NPDES GP permits, may affect but was not likely to adversely affect northern sea otter, Steller's eider, and spectacled eider or their designated critical habitats (USFWS 2018a).

June 4, 2019: The USFWS concurred with the EPA's determination that the proposed reissuance of the 2018 NPDES GP AKG524000, may affect but was not likely to adversely affect short-tailed albatross, or spectacled eider, Steller's eider, and northern sea otter or their designated critical habitats (USFWS 2019a). The overall purpose of EPA's proposed action was to issue a NPDES GP for the discharge of seafood waste. The seafood waste produced is a byproduct of fisheries activities, which are separately permitted by the NMFS. We concluded the greater overall action and associated take was the permitting of the fisheries through NMFS, with the EPA's permitting role being a subcomponent of the greater action.

June 26, 2020: The USFWS received a request from the EPA to reinitiate consultation number 07CAAN00-2018-I-0369 to include areas in spectacled eider critical habitat south of St.

Lawrence Island, Alaska, for the discharge of seafood processing wastes by offshore seafood processors in federal waters (EPA 2020).

Reinitiation of Consultation

The NMFS has requested reinitiation of consultation number 07CAAN00-2015-F-0145 for the Alaska groundfish fishery to add formal consultation on the potential adverse effects to the spectacled eider and its critical habitat and the Alaska-breeding population of Steller's eider and its critical habitat. However, this consultation includes all ESA-listed species that may be affected. The NMFS has revised its analysis and determinations based on new information related to recent mortality events caused by the groundfish fleet and changes in fishing vessel use of the northern Bering Sea, as some target species of the GOA and BSAI groundfish fisheries have been moving north and less sea ice development has allowed vessel access to these areas.

The EPA has requested reinitiation of consultation to add the potential adverse effects of seasonal discharge of seafood processing effluent (i.e., waste) from fishery vessels within spectacled eider critical wintering habitat Unit 5. Unit 5 is located in the NMFS fisheries management regulatory zones 514 and 524, south of St. Lawrence Island, Alaska (Figure 1). The EPA has not previously consulted on discharge in spectacled eider critical habitat. In the past, EPA prohibited vessels from discharging within 1 nautical mile of federally designated critical habitat for spectacled eiders and Steller's eider. The EPA proposes to retain discharge prohibitions, in future permits, within 1 nautical mile of all critical habitat for spectacled eiders and Steller's eider, with a seasonal exception, from June 10 to December 31, in Unit 5 of spectacled eider critical habitat, which is essential to the species as wintering habitat.

USFWS Joint Biological Opinion

The USFWS is analyzing the NMFS and EPA requests under one joint consultation to evaluate the interrelated activities of the vessels, gear, and discharge and associated effects of the GOA and BSAI groundfish fisheries on ESA-listed species and their designated critical habitat. The NMFS authorizes fishing activities and the EPA authorizes discharge of the GOA and BSAI groundfish fisheries. Discharge may attract marine species and increase risk of interactions with vessels and fishing gear.

Short-tailed albatross, spectacled eider and its critical habitat, Steller's eider and its critical habitat, and sea otter and its critical habitat occur in marine habitat in the action area. The NMFS and EPA have previously consulted on the GOA and BSAI groundfish fisheries for these species, under separate consultations; see the history of consultations above. The NMFS and EPA are requesting consultation and modifying their previous determinations of effects on spectacled eider and Steller's eider based on the following events associated with the GOA and BSAI groundfish fisheries:

- A take event, October 2019, NMFS reported at least 22 spectacled eiders that were killed in a collision with a fishing vessel north of St. Lawrence Island. The adverse effects and

take of spectacled eiders were not analyzed in the previous consultations for the groundfish fisheries;
- A take event, March 2, 2020, NMFS reported take of at least one Steller's eider killed in a collision with a fishing vessel in the vicinity of False Pass near Unimak Island during. Adverse effects and take of Steller's eiders were not analyzed in the previous consultations for the groundfish fisheries;
- The EPA proposes to expand their discharge permit to allow activities to occur in spectacled eider critical habitat, Unit 5, from June 10 to December 31. Analysis of activities and related adverse effects in spectacled eider critical habitat was not analyzed in previous consultations for the groundfish fisheries.

Short-tailed albatross
The NMFS and EPA have not modified their analysis or determination of effects on short-tailed albatross of the GOA and BSAI groundfish fisheries and State of Alaska parallel groundfish fisheries. The USFWS 2015 biological opinion with NMFS exempted the incidental take of up to six short-tailed albatross in a 2-year period for these GOA and BSAI groundfish fisheries. In addition, the USFWS (2019a) biological opinion with NMFS exempted the incidental take of up to two short-tailed albatross in a 2-year period for the Pacific halibut fisheries in U.S. Convention waters off Alaska. Based on the actions agencies' determinations that the proposed action may adversely affect short-tailed albatross, we will analyze the anticipated effects in this biological opinion.

Spectacled eider
We previously concurred with the NMFS and EPA determinations that their actions may affect, but were not likely to adversely affect spectacled eiders. However, over the last few years sea ice has been forming later in the year and has been less extensive. Concurrently, the target species for the GOA and BSAI groundfish fisheries have also been moving further north, bringing the target species and the fishing vessels within the range of spectacled eiders. Based on this new information about the changing environment, the recent observations of unanticipated take of spectacled eiders, and the changes in the EPA's proposed action, the action agencies have revised their determinations to reflect that the proposed actions may adversely affect spectacled eiders and their critical habitat. In this biological opinion, we provide additional analysis of impacts to spectacled eider and its critical habitat.

Steller's eider
We previously concurred with the NMFS and EPA not likely to adversely affect determinations for impacts on Steller's eiders. Based on the recent incident documenting take of a Steller's eider associated with the GOA and BSAI groundfish fisheries, the agencies have revised their determinations to reflect that the proposed actions may adversely affects Steller's eiders. In this biological opinion, we provide additional analysis of impacts to Steller's eider.

The action agencies have determined that there are no changes in their proposed actions that would change anticipated effects to Steller's eider critical habitat. Therefore, they reaffirm their determination that the proposed actions are not likely to adversely affect Steller's eider critical

habitat. After reviewing the proposed actions and evaluating their anticipated effects, the USFWS concurs with the NMFS and EPA's determinations that the proposed activities are not likely to adversely affect Steller's eider critical habitat. Based on this concurrence, we will not discuss Steller's eider critical habitat further in this biological opinion.

Sea otter
We previously concurred with the NMFS and the EPA on their prior not likely to adversely affect determinations for sea otter and its federally designated critical habitat. No changes are proposed to the agency actions that would change the anticipated effects to sea otters or their critical habitat. The action agencies' determinations remain unchanged, and they have requested our concurrence with their not likely to adversely affect determination for sea otters and their critical habitat. After reviewing the proposed actions and evaluating their anticipated effects, the USFWS concurs with the NMFS and EPA's determinations that the proposed activities are not likely to adversely affect northern sea otters or their critical habitat. Based on this concurrence, sea otters will not be discussed further in this biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The NMFS Action
The NMFS proposed action is to continue operations of the Fishery Management Plan for the GOA and BSAI and the State of Alaska parallel groundfish fisheries (Figure 1). Fisheries in the waters of the Exclusive Economic Zone (EEZ) from 3 to 200 nautical miles (5.6 to 370.4 kilometers) offshore of Alaska are managed under these two Fishery Management Plans. Parallel State groundfish fisheries, in waters from 0 to 3 nautical miles from shore, are included because State waters are interdependent on the NMFS federally managed fisheries as they open and close concurrent with the Federal fisheries (NMFS 2020). Fishery Management Plans are authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and Alaska's Fishery Management Plans are adopted by the North Pacific Fishery Management Council (Council). The Council recommends the Fishery Management Plans and amendments to these plans, the Secretary of Commerce approves, disapproves, or partially approves these recommendations, and NMFS implements the provisions of the Fishery Management Plans by Federal regulations at 50 Code of Federal Regulations (CFR) parts 679 and 680. All Fishery Management Plans must comply with the Magnuson-Stevens Act as well as requirements of other applicable regulations and Federal laws, including the Endangered Species Act (ESA).

Vessels participating in GOA and BSAI groundfish fisheries include catcher-processors and catcher vessels, which deliver their catch to either a vessel with the ability to process fish or a shore side processing facility. Total allowable catch amounts are established for each gear-

species complex, amounts are further subdivided by gear type, area, and season. Authorized gear types for groundfish are pelagic and non-pelagic trawls, hook-and-line (demersal), pots, jigs, and other gear as defined in regulations at 50 CFR 679.2.

Fisheries managed under the BSAI Fishery Management Plan include Walleye Pollock, Pacific Cod, Sablefish, Yellowfin Sole, Greenland turbot, Arrowtooth Flounder, Rock Sole, Flathead Sole, Alaska Plaice, other flatfish, Pacific Ocean Perch, Northern Rockfish, Shortraker Rockfish, Rougheye Rockfish, other rockfish, Atka Mackerel, sharks, skates, sculpins, and octopus. Fisheries managed under the Gulf of Alaska Fishery Management Plan include pollock, Pacific Cod, Sablefish, shallow-water and deep-water flatfish, Rex Sole, Flathead Sole, Arrowtooth Flounder, Pacific Ocean Perch, Northern Rockfish, Shortraker Rockfish, Rougheye Rockfish, pelagic shelf rockfish, demersal shelf rockfish, thornyhead rockfish, Atka Mackerel, squid, sculpin, sharks, octopus, and skates (NMFS 2020). The groundfish fisheries are authorized, by season based targeted catch, from January 1 to December 31. For details on seasons, refer to the NMFS biological assessment, Section 4.3.3 (NMFS 2020).

The EPA Action

The EPA's proposed action is to modify the NPDES GP AKG524000 for the discharge of seafood processing wastes by offshore seafood processors in Federal waters. The modification consists of including the above seasonal discharge allowance in Unit 5 of spectacled eider critical habitat. The EPA permit covers discharge of seafood processing waste from the GOA and BSAI groundfish fisheries that operate in the EEZ from 3 to 200 nautical miles offshore of Alaska, and are engaged in processing of fresh, frozen, canned, smoked, salted, or pickled seafood or the processing of seafood mince, paste, or meal and other secondary by-products. Target species primarily include groundfish (e.g., pollock, Pacific cod, sablefish, rockfish, Pacific halibut, and other species of flatfish); five Alaskan species of salmon; herring; and king, Dungeness, and Tanner crab (EPA 2020).

Seafood processing results in the following recoverable products:

- H&G blocks (headed and gutted fish with tails removed)
- Fillet blocks
- Minced blocks
- Surimi blocks
- Fishmeal
- Fish oil

The EPA estimates fewer than 100 permitted seafood-processing facilities discharge effluent and operate more than 3 nautical miles from the shore of Alaska. The annual waste discharges from the offshore vessels submitting 2014 and 2015 annual reports ranged from 0 (no discharge) to 88,188,314 pounds (44,094 short tons or 40,001 metric tons). Total discharge for all offshore vessels reporting in 2015 was 1,123,131,855 pounds (562,566 short tons or 509,444 metric tons).

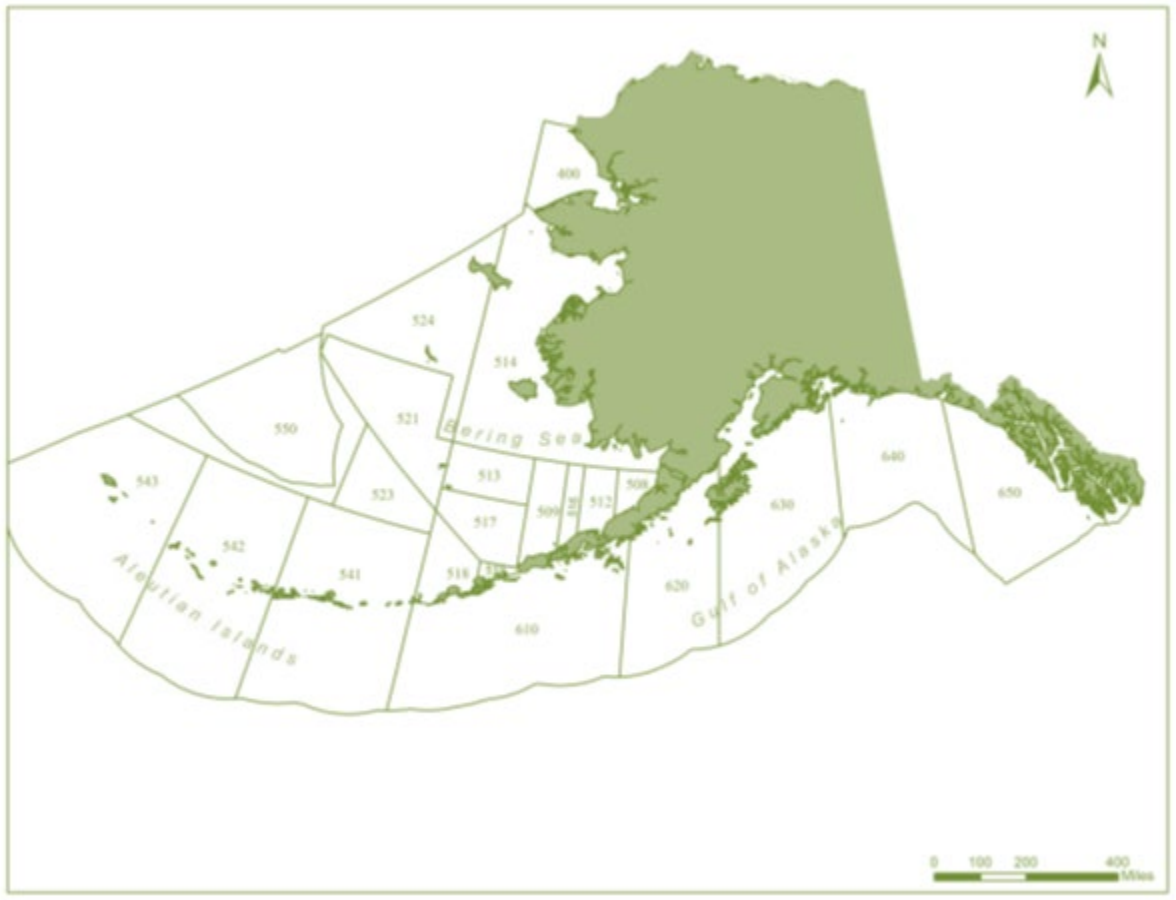

Figure 1. Action area numbered by NMFS fisheries management regulatory zones in the Bering Sea, Aleutian Islands, and Gulf of Alaska (NMFS 2020).

Of the 83 vessels that reported data in 2015, 12 reported zero discharge with 65 percent of the facilities discharging less than 10 million pounds (5,000 short tons or 4,500 metric tons).

EPA permitted discharge includes the following sources:

- Seafood processing wastewater (offal) including the waste fluids, heads, organs, flesh, fins, bones, skin, chitinous shells, and stickwater, all of which are byproducts produced by the conversion of aquatic animals from a raw form to a marketable form.
    - Permittees must fully utilize to the extent practicable all treatment processes available on board their vessel, including but not limited to fishmeal and fish oil production.
    - Permittees must discharge effluents into hydrodynamically energetic waters (i.e., constantly in motion) with a high capacity of dilution and dispersion.
- Wash-down water, which include disinfectants added to wash-down water to facilitate the removal of wastes and to maintain sanitary standards during processing or to sanitize seafood-processing areas.

- Sanitary wastewater discharged in accordance to U.S. Coast Guard regulations.
- Other wastewater generated in the seafood processing operation, including, seafood catch transfer water, live tank water, refrigerated seawater, cooking water, boiler water, gray water, cooling water, refrigeration condensate, freshwater pressure relief water, clean-up water, and scrubber water.

The EPA discharge permits prohibit the discharge of petroleum (e.g., diesel, kerosene, and gasoline) or hazardous substances into or upon the navigable waters of the U.S., adjoining shorelines, into or upon the waters of the contiguous zone which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the U.S., under 33 U.S.C.A. 1321(b)(3).

The majority of seafood processing waste consists of blood, tissue, liquid, meat, viscera, oil and grease, shells, and bones. Other than shells and bones, the waste is mostly organic matter that is primarily highly biodegradable. They result in pollutants, which consist of solids (sediments and residues), biochemical oxygen demand (BOD), oil and grease, and nutrients. These major pollutants are considered non-toxic nature (EPA 2020).

Solid waste generally consists of two streams, the material that cannot be processed by the onboard processing plant and unground solid waste. Material not processed by processing plants is piped or conveyed to the collecting sumps on the processing deck, where it is ground and pumped overboard. Unground solid waste, including sea debris, prohibited species, fish and bycatch, is discharged directly from the vessel; this category of discharge material represents an extremely small fraction of the solid waste (EPA 2020).

Proposed Mitigation Measures

The following is a summary of the avoidance and minimization measures that each agency will implement to protect ESA-listed species (EPA 2020, NMFS 2020):

- The NMFS will recommend vessels avoid areas of known ESA-listed seabird congregations.
- The NMFS will continue to require use of seabird avoidance and minimization measures such as streamer lines for the Alaska hook-and-line fisheries[1], and develop outreach and education strategies for vessels with high seabird and fisheries interactions. The NMFS has an observer program to monitor target species and report incidental take of ESA-listed species.
- The NMFS will recommend minimizing the use of external lighting at night, minimizing the use of sodium lighting and other high-wattage light sources, and angling these lights downward toward the surface of the water to reduce seabird attraction.
- The NMFS will lead the seabird-working group with the U.S. Fish and Wildlife Service (USFWS) to provide additional recommendations for mitigating seabird bycatch to the fishing industry.
- The EPA will require permittees to prepare a Best Management Practices Plans to prevent or minimize the generation and discharge of wastes and pollutants from the facility to the waters of the U.S.

- The EPA will not authorize discharges to receiving waters that have been identified as protected water resources, critical habitats, and special areas, including waters in proximity to living substrates such as submerged aquatic vegetation, kelp, and eelgrass in shallow coastal waters, generally less than 60 feet (18.3 meters) in depth. Areas within 1 nautical mile of federally designated critical habitat for spectacled eiders and Steller's eiders will not be included in the EPA discharge permits with exception of allowing seasonal discharge in the spectacled eider critical habitat from June 10 to December 31, in Unit 5.
- The EPA will require vessels to be moving while discharging seafood waste to increase the dispersal rate, unless doing so compromises the safety of the vessel.
- The EPA will require daily sea surface monitoring to document compliance with marine water quality and to estimate the occurrence and number of ESA-listed species and their interactions with seafood discharge.
- The EPA will use information gathered from visual monitoring in their evaluation during the next permit cycle.

Streamer lines

Seabird bycatch occurs primarily in the hook-and-line fisheries; short-tailed albatross have been injured by gear or drowned while trying to take bait on weighted sinking hooks. Streamer lines reduce the risk of seabird interaction with baited lines (Figure 2).

Streamer lines were one of the options for mandatory avoidance measures in 1997 (62 FR 23176). Many fishermen voluntarily adopted the use of streamer lines in 2002. Regulations for groundfish and halibut vessels using hook-and-line gear off Alaska were revised in 2004 to require the use of streamer lines with standards of proven effectiveness (69 FR 1930).

The type of streamer line required depends on the area fished, the length of the vessel, and the type of hook-and-line gear (e.g., snap gear). Larger vessels, greater than 55 feet (16.8 meters) length overall, in the EEZ must use a minimum of a paired streamer line of a specified performance and material standard. Smaller vessels, those greater than 26 feet (7.9 meters) and less than or equal to 55 feet (16.8 meters), must use a minimum of a single streamer line or, in limited instances, a minimum of one buoy bag line. See the NMFS (2020) biological assessment for more specific requirements related to seabird avoidance measure by vessel type.

Controlled and large-scale field studies have demonstrated that properly deployed paired streamer lines are effective at reducing seabird attacks on the gear by 85 to 100 percent (Melvin et al. 2001). Dietrich et al. (2009) found seabird bycatch rates have decreased in Alaska by 78 percent since the implementation of streamer lines. Further analyses found a small number of vessels were responsible for the majority of seabird bycatch (Dietrich and Fitzgerald 2010). The effectiveness of streamer lines is documented in the bycatch data, which shows continued reduction in bycatch rate since fishermen began using streamer lines (NMFS 2020). Single streamer lines are slightly less effective than paired lines, reducing seabird bycatch by 96 percent and 71 percent for the sablefish and Pacific cod fisheries, respectively (Melvin et al. 2001).

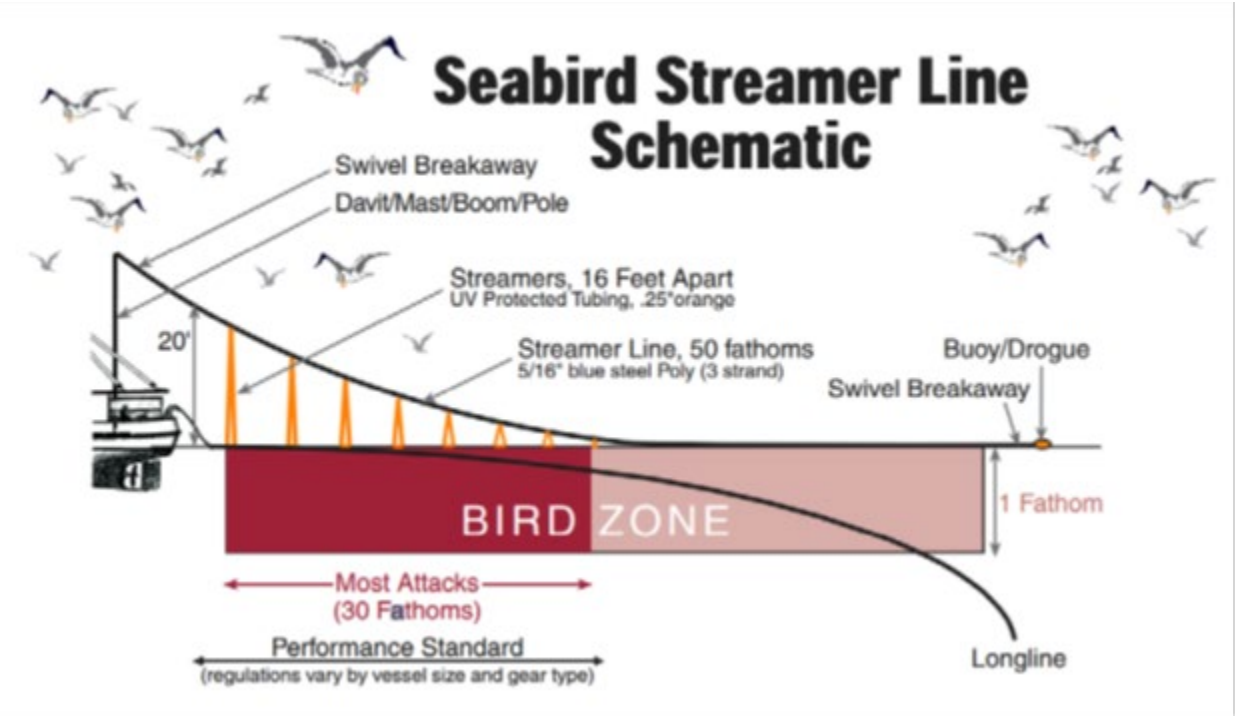

Figure 2. Streamer lines are used to reduce seabird bycatch in fisheries using hook-and-line gear (Melvin 2000).

The use of integrated weight longlines, used simultaneously with paired streamer lines, reduces seabird mortality almost completely (Dietrich et al. 2008).

Offal

As described in the NMFS (2020) biological assessment mitigation measures, if seafood processing wastewater (offal) is discharged while gear is being set or hauled, offal will be discharged in a manner that distracts seabirds from baited hooks, to the extent practicable. The discharge site on a vessel must be either aft of the hauling station or on the opposite side of the vessel from the hauling station. Directed discharge will be eliminated through chutes or pipes of residual bait or offal from the stern of the vessel while setting gear. For vessels not deploying gear from the stern, directed discharge of residual bait or offal will be eliminated over sinking hook-and-line gear while gear is being deployed. See 50 CFR 679.24(e)(2)(v) for more specific requirements.

Observer Program

Fisheries observers have been deployed by the NMFS since 1972. The Observer Program, run by the NMFS, monitors fish, bycatch, and marine mammal and seabird interactions in Alaska's federally managed groundfish and halibut fisheries. The Observer Program, implemented by regulations in subpart E of 50 CFR part 679, authorizes collection of information that is used to

develop best management practices for conservation and management of the fisheries, and to reduce bycatch.

In addition, observers are trained on how to identify dead seabirds, as well as specific information for the identification of species of interest, including: short-tailed albatross, spectacled eider, Steller's eider, red-legged kittiwake (*Rissa brevirostris*), marbled murrelet (*Brachyramphus marmoratus*), and Kittlitz's murrelet (*B. brevirostris*). Information collected by observers, used in conjunction with reporting and weighing requirements, provides the foundation for in season fisheries management and for tracking species-specific catch and bycatch amounts.

Substantial changes to the structure of the Observer Program annual deployment plan took effect in January 2013 (77 FR 70062). These changes increased the statistical reliability of data collected by the program and expanded observer coverage to previously unobserved fisheries. The restructured Observer Program dramatically reduced the proportion of trips in the commercial halibut fleet that are not subject to observer coverage, which provides data that better represents the fishery. The NMFS incorporated electronic monitoring into their Observer Program on August 8, 2017 (82 FR 36991). The electronic monitoring allows demersal (longline) vessels to opt for the electronic monitoring system instead of an observer on board. It also reduces observer bias and provides a mechanism for gathering data on additional vessels.

The information collected by the NMFS certified observers provides scientific information for managing the commercial halibut and groundfish fisheries and minimizing bycatch. Since the Observer Program expanded coverage in 2013, take of one Steller's eider was reported in March of 2014, which was later determined to be from the non-listed population. An observer reported take of 22 spectacled eiders on October 10, 2019. Take of one Steller's eider was reported on March 2, 2020, from a vessel that opted to use the NMFS electronic monitoring system in place of an observer. Finally, an observer reported take of one short-tailed albatross as bycatch in the commercial fishery on September 26, 2020, and on another observer reported take of one short-tailed albatross as bycatch by the commercial fishery on October 15, 2020.

Observers report take to the NMFS. If an ESA-listed seabird is injured or killed and there is a fisheries observer on board the vessel, the observer will report the take to NMFS and the USFWS will be notified of the take within 48 business day hours. If there is not an observer on board the vessel, NMFS requests specimens be retained and reported immediately to NMFS or USFWS. As specified at 50 CFR 679.24(e)(2)(vi), regulations continue to require that every reasonable effort be made to ensure that ESA-listed seabirds brought on board alive are released alive. Short-tailed albatross, spectacled eiders, and Steller's eiders should be released on site if they meet ALL of the following criteria:

- Bird can stand and walk using both feet;
- Bird can flap both wings and there is no apparent wing droop;
- Bird is alert, active, holds its head up and reacts to stimuli;
- Bird is not bleeding freely;

- Wing and tail feathers have not been lost and are in good condition;
- Bird is waterproof (water beads up on feathers).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

Section 7(a)(2) of the ESA requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species.

"Jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the range-wide condition of the short-tailed albatross, spectacled eider, and Steller's eider, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the short-tailed albatross, spectacled eider, and Steller's eider in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the short-tailed albatross, spectacled eider, and Steller's eider; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the short-tailed albatross, spectacled eider, and Steller's eider and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities, that are reasonably certain to occur in the action area, on the short-tailed albatross, spectacled eider, and Steller's eider.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the short-tailed albatross, spectacled eider, and Steller's eider, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the short-tailed albatross, spectacled eider, and Steller's eider in the wild by reducing the reproduction, numbers, and distribution of that species.

Adverse Modification Determination

Section 7(a)(2) of the ESA requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to destroy or to adversely modify designated critical habitat. A final rule revising the regulatory definition of "destruction or adverse modification" was published on February 11, 2016 (81 FR 7214). The final rule became effective on March 14, 2016. The revised definition states:

"Destruction or adverse modification" means "a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species."

The "destruction or adverse modification" analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which describes the range-wide condition of the critical habitat in terms of the key components (i.e., essential habitat features, primary constituent elements, or physical and biological features) that provide for the conservation of the listed species, the factors responsible for that condition, and the intended value of the critical habitat overall for the conservation/recovery of the listed species; (2) the Environmental Baseline, which analyzes the condition of the critical habitat in the action area, the factors responsible for that condition, and the value of the critical habitat in the action area for the conservation/recovery of the listed species; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the key components of critical habitat that provide for the conservation of the listed species, and how those impacts are likely to influence the conservation value of the affected critical habitat; and (4) Cumulative Effects, which evaluate the effects of future non-Federal activities that are reasonably certain to occur in the action area on the key components of critical habitat that provide for the conservation of the listed species and how those impacts are likely to influence the conservation value of the affected critical habitat.

For purposes of making the "destruction or adverse modification" determination, the USFWS evaluates if the effects of the proposed Federal action, taken together with cumulative effects, are likely to impair or preclude the capacity of critical habitat in the action area to serve its intended conservation function to an extent that appreciably diminishes the range wide value of critical habitat for the conservation of the listed species. The key to making that finding is understanding the value (i.e., the role) of the critical habitat in the action area for the conservation/recovery of the listed species based on the Environmental Baseline analysis.

STATUS OF THE SPECIES AND ITS CRITICAL HABITAT

Short-tailed albatross

Listing Status

The short-tailed albatross was federally listed as endangered throughout its range, including the United States, on July 31, 2000 (65 FR 46643). The Short-tailed Albatross Recovery Plan was finalized in 2008 (USFWS 2008), the most current 5-year review was completed in August 2020 (USFWS 2020).

Taxonomy and Species Description

The short-tailed albatross is a large pelagic bird with long, narrow wings adapted for soaring above the water surface. The short-tailed albatross is the largest albatross species in the North Pacific with a body length of 33 to 37 inches (84 to 94 centimeters) and wingspan of 84 to 90 inches (213 to 229 centimeters). Adults have a white head and body and golden cast to the crown and nape. The tail is white with a black terminal bar. A disproportionately large pink bill

distinguishes it from the other two North Pacific albatross species (Laysan albatross [*Phoebastria immutabilis*] and black-footed albatross [*P. nigripes*]) and its hooked tip becomes progressively bluer with age. Short-tailed albatross juveniles are blackish-brown, progressively whitening with age and are the only North Pacific albatross that develops an entirely white back at maturity (USFWS 2008).

Life History

Short-tailed albatross are a long-lived species with a life span of up to 50 years. They are monogamous and highly philopatric to nesting areas (they return to the same breeding site year after year). However, young birds may occasionally disperse from their natal colonies to attempt to breed elsewhere. In non-breeding season, short-tailed albatross disperse widely throughout the temperate and subarctic North Pacific Ocean (Sanger 1972; Suryan et al. 2007a).

Birds begin breeding between 5 and 6 years of age. Each breeding cycle lasts about 8 months. Most birds arrive on breeding grounds in October, but as many as 25 percent of breeding age adults may not return to the colony in a given year; instead, they spend the year at sea, often in Alaskan waters. Parents alternate foraging trips that may last 2 to 3 weeks while taking turns incubating the egg. Hatching occurs from late December through January (Hasegawa and DeGange 1982). The first few days after hatching, the chick is fed on stomach oil, which is rich in calories and vitamin A. This oil also provides a source of water once metabolized. Soon after, the chicks are fed more solid food, such as squid and flying fish eggs.

By late May or early June when the chicks are almost fully-grown, the adults begin abandoning the colony site (Hasegawa and DeGange 1982). The chicks fledge soon after the adults leave the colony (Austin 1949) and by mid-July. Non-breeders and failed breeders disperse earlier from the breeding colony, during late winter through spring (Hasegawa and DeGange 1982).

Habitat Distribution

Short-tailed albatross spend the majority of their time at sea. They range from western Pacific China, South Korea, and Japan to Russia, Alaska, and Canada to the southwest coast of North America. They breed on remote islands mostly in the western Pacific Ocean. During breeding, the majority feed along continental shelf-break areas east of Honshu, Japan. During non-breeding season, they feed along shelf break areas of the Bering Sea, Aleutian Islands and in other Alaskan, Japanese, and Russian waters.

Juveniles and younger sub-adult birds (up to 2 years old) use a wider geographic range than adults; they can be found in the Sea of Okhotsk, over a broad region of the Bering Sea, and the west coast of North America (O'Connor et al. 2013; Figure 3). Sub-adults travel greater daily distances than adults (83 miles/day [134 kilometers/day]) (Suryan et al. 2007b; O'Connor et al. 2013). Post-fledging juvenile birds range widely throughout the North Pacific rim, and some individuals spend time in the oceanic waters between Hawaii and Alaska (Deguchi et al. 2014). Although the highest concentrations of short-tailed albatross are found in the Aleutian Islands and Bering Sea regions (primarily along the outer shelf) of Alaska, sub-adults appear to be distributed along the west coast of the United States (Guy et al. 2013).

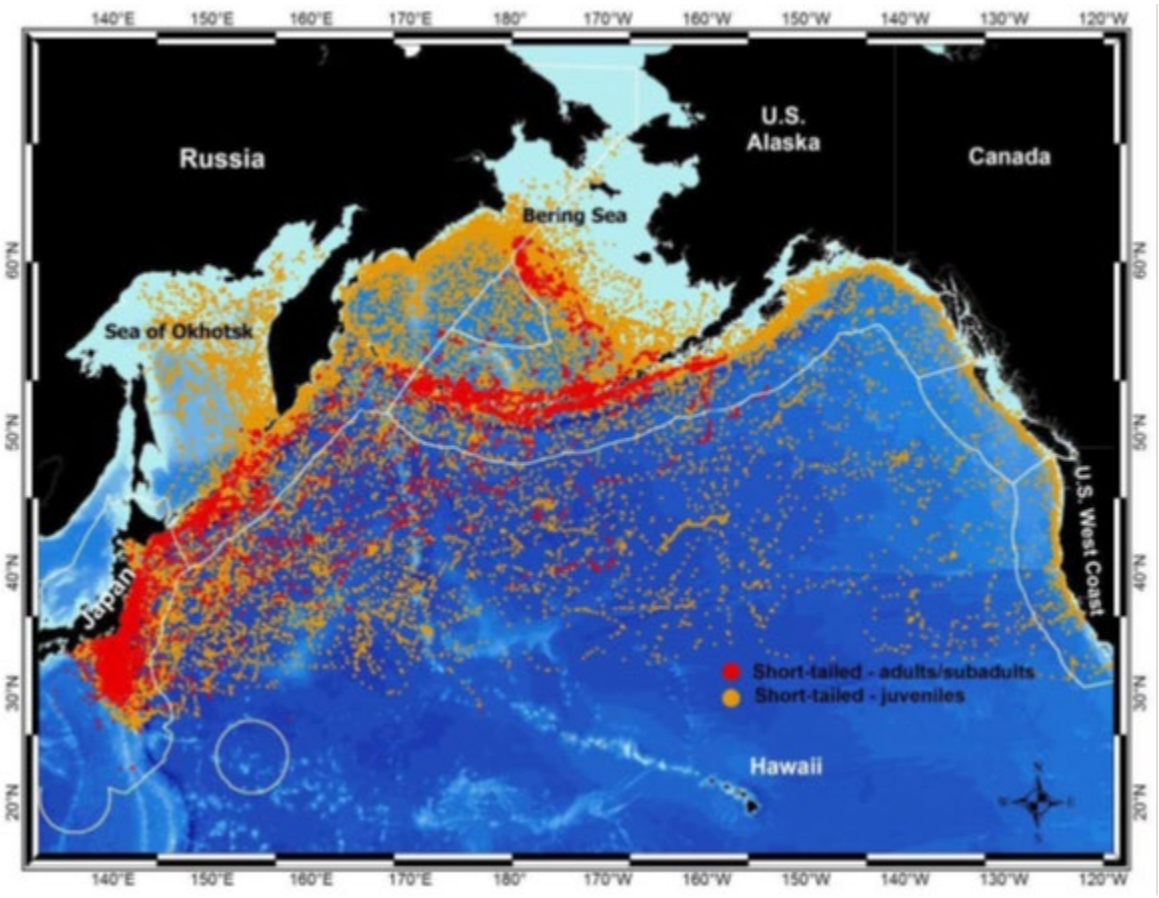

Figure 3. Locations of 99 short-tailed albatross tracked between 2002 and 2012, showing adult and juvenile distributions in the North Pacific (Suryan et al. 2006, 2007b, 2008; Suryan and Fischer 2010; Deguchi et al. 2014). White lines represent the EEZs of countries within the range of short-tailed albatross.

Foraging Ecology and Diet

The diet of the short-tailed albatross is not well-known, but observations of food brought to nestlings and of regurgitated material (Austin 1949), as well as at-sea observations during feeding, indicate that the diet includes squid, shrimp, fish (including bonitos [*Sarda* sp.], flying fishes [Exocoetidae], and sardines [Clupeidae]), flying fish eggs, and other crustaceans (Tickell 1975; Hasegawa and DeGange 1982). Short-tailed albatrosses forage diurnally and possibly nocturnally (Hasegawa and DeGange 1982), either singly or in groups (occasionally in the hundreds), predominantly taking prey by surface-seizing (Piatt et al. 2006). This species has also been reported to scavenge discarded marine mammals and blubber from whaling vessels, and they readily scavenge fisheries offal from commercial fisheries (Hasegawa and DeGange 1982).

In an analysis of historic and current distribution of North Pacific albatrosses, Kuletz et al. (2014) speculated that the increase in albatrosses (including short-tailed albatross) and changes

in their distribution over the last decade may be due to possible increases in squid biomass in the Bering Sea and Aleutian Islands region. Overall, the higher abundance of albatrosses in the Aleutian Islands compared to the Bering Sea mirrors the relative density of squid, which is estimated to be approximately seven times higher in the Aleutian Islands (Ormseth 2012).

Breeding Habitat

Short-tailed albatrosses nest on isolated, windswept, offshore islands, with restricted human access. On Torishima Island, most birds nest on a steep site (Tsubamezaki) containing loose volcanic ash, however, a new colony (Hatsunezaki) on a vegetated gentle slope is growing rapidly. Nesting at the eroding Tsubamezaki site may be an artifact of where commercial harvest did not occur, due to the difficulty of access for humans.

Historical and Current Distribution

Historically, the short-tailed albatross was probably the most abundant albatross in the North Pacific, with 14 known breeding colonies in the northwestern Pacific and potentially in the North Atlantic (Olson and Hearty 2003; USFWS 2008). However, from the late 1800's, millions were hunted for feathers, oil, and fertilizer (USFWS 2008), and by 1949, no birds were observed breeding and the species was thought to be extinct. The species began to recover during the 1950s, and currently occurs throughout the North Pacific Ocean. From a species thought to be extinct in the 1940's, the short-tailed albatross estimated population has steadily increased to around 5,856 individuals following the 2016 to 2017 breeding season. The population is increasing at an average annual rate of 8.5 percent (Sievert and Hasegawa, unpublished population model, 2017).

Current breeding colonies exist in 3 main locations, the Izu Islands, Ogaswara Islands, and Senkaku Islands with some limited breeding on other islands such as on Midway Atoll in the Northwestern Hawaiian Islands. The current distribution of breeding pairs is approximately 84 percent in the Izu islands, specifically on Torishima Island; 16 percent in the Senkaku Islands; and less than 1 percent in the Ogasawara Islands (Figure 4). In 2010, one breeding pair arrived in the U.S. Northwestern Hawaiian Islands, at Midway Atoll National Wildlife Refuge, and they subsequently successfully hatched and fledged one chick in 2011. Since then, one short-tailed albatross chick has successfully fledged in 2012, 2014, 2019, and 2020. The most recent chick hatched on or about December 31, 2020, and is reportedly doing well, but has not yet fledged (pers. comm., Jon Plissner 2021). The 2011 hatching on Midway Atoll marked the first confirmed hatching of a short-tailed albatross outside of the islands surrounding Japan in recorded history. Prior to that, observations of infertile short-tailed albatross eggs and reports from the 1930's suggest short-tailed albatross may have nested on Midway Atoll in the past.

Threats

Current threats to the species include destruction of breeding habitat by volcanic eruption or mud or landslides, and demographic or genetic vulnerability due to low population size and limited breeding distribution (65 FR 46643). Longline fisheries, vessel strikes, plastics ingestion, and contaminants may also be factors affecting the species' conservation.

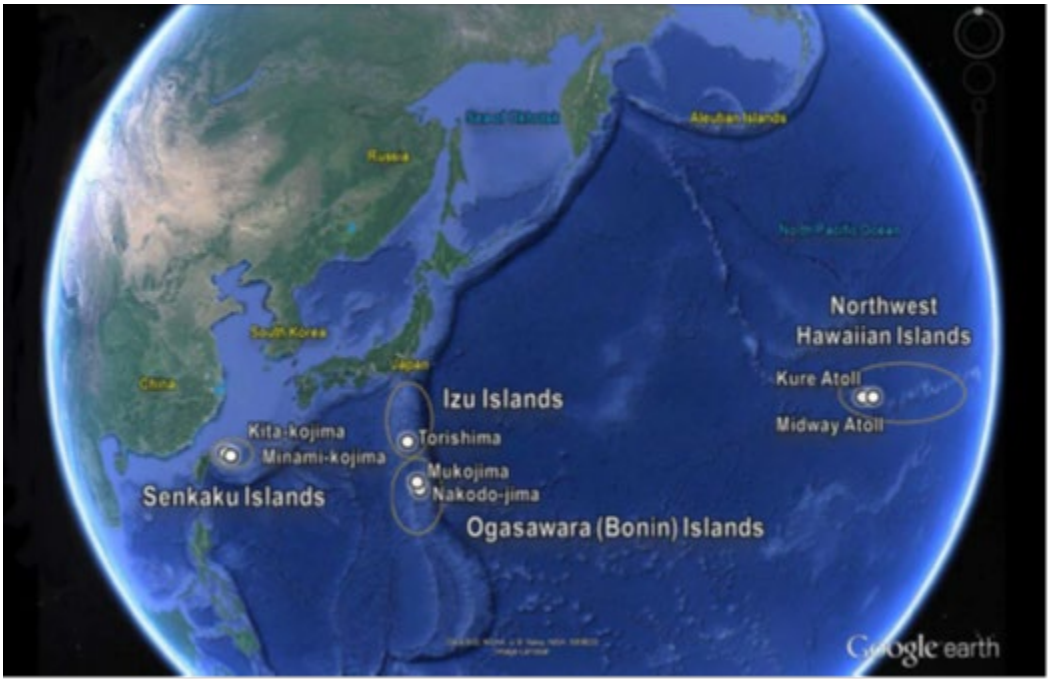

Figure 4. Short-tailed albatross breeding locations in the North Pacific.

Commercial Fishing

Albatross, like many seabirds, attack baited hooks of both pelagic and demersal longlines after the hooks are deployed; if they are hooked or snagged, they are likely to be injured or pulled underwater with the rest of the gear and drowned (USFWS 2008). Interactions with trawls may occur when seabirds fly behind vessels or float in offal plumes that trail behind vessels. Individuals can strike the trawl cables (warp cables) or the sonar cable (third wire) attached to the net or become entangled on the outside of nets towed at or near the surface; the former in particular are unlikely to be detected as they do not show up on the vessels' deck to be sampled (USFWS 2008). Since 1990, fisheries observers have documented short-tailed albatross mortalities in the Bering Sea, Gulf of Alaska, and Aleutian Islands by hook-and-line fisheries targeting Pacific cod and Greenland turbot and from the individual fishing quota (IFQ) sablefish fishery (Appendix 1).

Russian longline cod fisheries implemented experimental use of streamer lines from 2004 to 2008 (Artukhin et al. 2013). The frequency of reported seabird attacks was 5 to 9 times lower on boats with paired streamer lines, and total catch of fish was 4 to 12 percent higher. The study recommended wide application of streamer lines in the Far Eastern Seas of Russia. Although consistent funding has been a problem, the World Wildlife Fund has continued to work with Russian partners to educate the Russian commercial fishing communities about the benefits of using streamer lines and promote their use to reduce seabird bycatch and improve fishing success (World Wildlife Fund 2014).

Japan developed a National Plan of Action for seabird conservation and management (Fisheries Agency of Japan 2004, 2009). In areas where short-tailed albatrosses occur (north of 23˚N latitude), vessels must employ two of the following measures, one of which must be from the first four listed, and streamer lines are obligatory within 20 miles (32 kilometers) of Torishima Island in October through May: side setting with a bird curtain and weighted branch lines, night setting with minimum deck lighting, streamer lines, weighted branch lines, blue-dyed bait, deep setting line shooter, and/or management of offal discharge. Japan has also implemented an observer program on their longline and purse seine fisheries to observe bycatch of non-target species, including seabirds (Uosaki et al. 2013, 2014). The only observed seabirds incidentally caught north of the 23˚N latitude were a black-footed albatross in 2012 and an unidentified petrel in 2013 (Uosaki et al. 2013, 2014). However, only a small percentage of deployed hooks are observed.

Japanese fishermen pioneered the use of streamer lines to deter seabirds, and researchers have continued to assess their use. Researchers have continued to examine methods to improve the effectiveness of streamer lines. Yokota et al. (2011) and Sato et al. (2012) assessed types and lengths of streamer lines for their effectiveness and found that lighter lines with shorter streamers are as effective as those with long streamers, although the shorter lines are thought to be safer and less likely to tangle. Sato et al. (2013) further examined the use of paired versus single streamer lines and determined that paired lines were more effective than single lines in reducing bait attacks and seabird mortality. The continuing research by Japan has been an important contribution to minimizing longline fisheries bycatch of short-tailed albatross.

Plastic Pollution

Plastics have been found in most, if not all, species of albatross. Both black-footed and Laysan albatross are well known to ingest plastics in the course of foraging. Lavers and Bond (2016) have recently examined the role of plastic as a vector for trace metals in Laysan albatrosses. Lavers et al. (2014) studied sub-lethal effects of plastic ingestion in flesh-footed shearwaters (*Puffinus carneipes*) and found birds with high levels of ingested plastic exhibited reduced body condition and increased contaminant load (Lavers et al. 2014). Tanaka et al. (2013) analyzed polybrominated diphenyl ethers in the abdominal adipose of short-tailed shearwaters (*P. tenuirostris*). Some of the birds were found to contain higher-brominated constituents, which were not present in their pelagic fish prey. These same birds were found to contain plastics in their stomach. Plastic ingestion is therefore not only a direct dietary risk but may contribute to chronic accumulation of contaminants that adhere to and are absorbed by plastics in albatross.

Contaminants

Albatross and other birds may be exposed to organochlorine contaminants such as polychlorinated biphenyls (PCBs) and pesticides, and to toxic metals (e.g., mercury, lead) via atmospheric and oceanic transport. Vo et al. (2011) examined mercury and methylmercury in tissues of black-footed albatross. They compared the levels of mercury and methylmercury in museum specimens (n = 25) from a 120-year collection period (1880 to 2002). They found no temporal trend in mercury concentrations, but measured significantly higher concentrations of methylmercury through time. Finkelstein et al. (2007) found mercury concentrations in black-

footed albatross were associated with decreased immune response. Similar effects would be expected for short-tailed albatross.

Strategies for recovery are defined in the *Recovery Needs and Strategies* section below.

Spectacled eider

Listing Status

On May 10, 1993, spectacled eiders were listed as threatened throughout their range based on indications of steep declines in the two Alaska-breeding populations (58 FR 27474). There are three primary populations of spectacled eider, which correspond to their breeding grounds: 1) the Alaska North Slope (also known as the Arctic Coastal Plain), 2) the Yukon–Kuskokwim Delta, and 3) Arctic Russia, where the majority of spectacled eiders breed.

Taxonomy and Species Description

Spectacled eiders are medium-sized sea ducks. Males in breeding plumage have a white back, black breast, and pale green head with large white "spectacles" around the eyes. In late summer and autumn, adult males molt into a mottled brown plumage that lasts until late fall, when they re-acquire breeding plumage. Females are mottled brown year round, with pale tan spectacles. Juveniles attain breeding plumage in their second (female) or third (male) year; until then, females are mottled brown and males mottled brown and white. Both males and females have sloped foreheads and bills, giving them a characteristic profile (USFWS 2010).

Life History

Spectacled eiders are at sea 8 to 12 months of the year. During breeding season they nest on land in coastal areas. They stage in waters along coastal areas before and after nesting (Figure 5). They move to molting areas in late summer to fall, and generally remain in molting areas until heading toward wintering areas. They spend winter in openings of pack ice in the northern Bering Sea (Petersen et al. 1999, Lovvorn et al. 2003). After winter, they migrate to pre-nesting staging areas until spring thaw (Sexson et al. 2014).

Breeding and Demographics

Three breeding populations of spectacled eiders are recognized. The Arctic Coastal Plain breeding population breeds along the coast of the eastern Chukchi Sea and western Beaufort Sea on the North Slope, about 50 miles (80 kilometers) inland, primarily between Cape Simpson and the Sagavanirktok River (USFWS 2015b). The Arctic Russia population breeds near the coast of the East Siberian Sea, from the Kolyma River to the Yana River Deltas in Chukotka and Yakutia, Russia. The Yukon-Kuskokwim Delta population breeds in western Alaska on the Yukon-Kuskokwim Delta within about 9 miles (15 kilometers) of the coast, primarily between Kigigak Island and Kokechik Bay (Petersen et al. 2000).

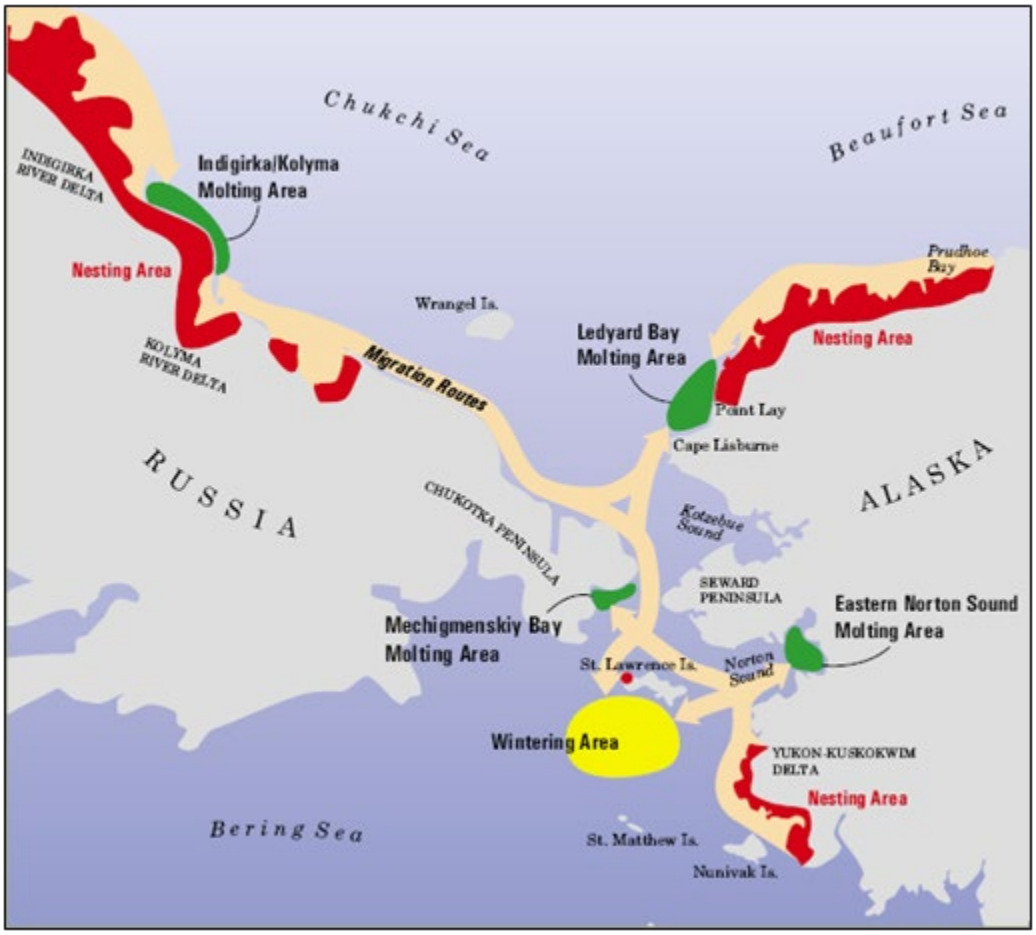

Figure 5. Seasonal distribution of spectacled eiders. Nesting areas (red) are used May to July. Molting areas (green) are used July through October. Wintering areas (yellow) are used October through April (USFWS 2010). The full extent of molting and wintering areas is not yet known and may extend beyond the areas shown.

Nest initiation occurs from mid-May to mid-June. Mean clutch size is 4.3 eggs, with clutches up to 8 eggs (Quakenbush et al. 1995; Bart and Earnst 2005; Safine 2011). Incubation lasts 20 to 25 days (Kondratev and Zadorina 1992), and hatching occurs from June to late July. Males generally depart breeding areas when females begin incubation (Bart and Earnst 2005). Females generally depart the breeding grounds later, after ducklings fledge, which is approximately 50 days after hatching. Females with broods move from freshwater to marine habitat prior to fall migration.

Fall Migration and Molting

Individuals depart breeding areas July to October, depending on breeding status and success, and head toward molting areas. Males reach molting areas first, non-breeding females and those that nested but failed arrive next, followed by successfully breeding females and young of the late October, and as late as November (Figure 6). Males use various molting areas while females use

molting areas nearest their breeding grounds (USFWS 2012). For example, females from the Yukon-Kuskokwim Delta population primarily molt in Norton Sound (Petersen et al. 1999).

During migration from nesting to molting areas, spectacled eiders travel along the coast up to 37 miles (60 kilometers) offshore (Petersen et al. 1999). They gather to molt in waters up to 118 feet (36 meters) in depth before heading to their wintering area.

Wintering

Wintering spectacled eiders arrive as early as October from molting areas, migrating offshore through the Bering and Chukchi Seas to the northern Bering Sea, south of St. Lawrence Island, Alaska, often using openings in the sea ice (Petersen et al. 1999, Sexson et al. 2014). In this relatively shallow area greater than 350,000 spectacled eiders rest, feed, and dive up to 230 feet (70 meters) to eat bivalves, other mollusks, and crustaceans (Cottam 1939; Petersen et al. 1998; Lovvorn et al. 2003; Petersen and Douglas 2004).

Spring Migration

Spring migration begins around April. Spectacled eiders stage offshore in Norton Sound, the western Bering Strait, the Yukon-Kuskokwim Delta, the eastern Chukchi Sea, and the East Siberian Sea, as they wait for ice to retreat, migratory routes to open, and breeding grounds to thaw (Sexson et al. 2014).

Site fidelity is strongly connected through to important areas (Figure 7). Sexson et al. (2014) used satellite transmitters, from 2008 to 2012, to identify the direction and sex differences of migration between breeding and wintering range. Marked spectacled eiders sometimes followed coastlines and other times migrated straight across the northern Bering Sea and Chukchi Sea (Figures 8).

Foraging Ecology and Diet

Spectacled eiders spend most of the year in marine waters. They are benthivorous sea ducks, primarily feeding on bottom dwelling bivalve mollusks and crustaceans. Adequate foraging opportunities and nutrition during winter and spring migration are critical to spectacled eider productivity. Like most sea ducks, female spectacled eiders do not feed substantially during incubation, but incubate their eggs while living primarily off body reserves (Korschgen 1977; Drent and Daan 1980; Parker and Holm 1990; USFWS 2015b). Feeding on breeding grounds includes mollusks, insect larvae (craneflies, caddisflies, and midges), small freshwater crustaceans, plants, and seeds on breeding grounds (Kondratev and Zadorina 1992). During molting, they require adequate food resources for survival and feather growth (Sexson et al. 2016).

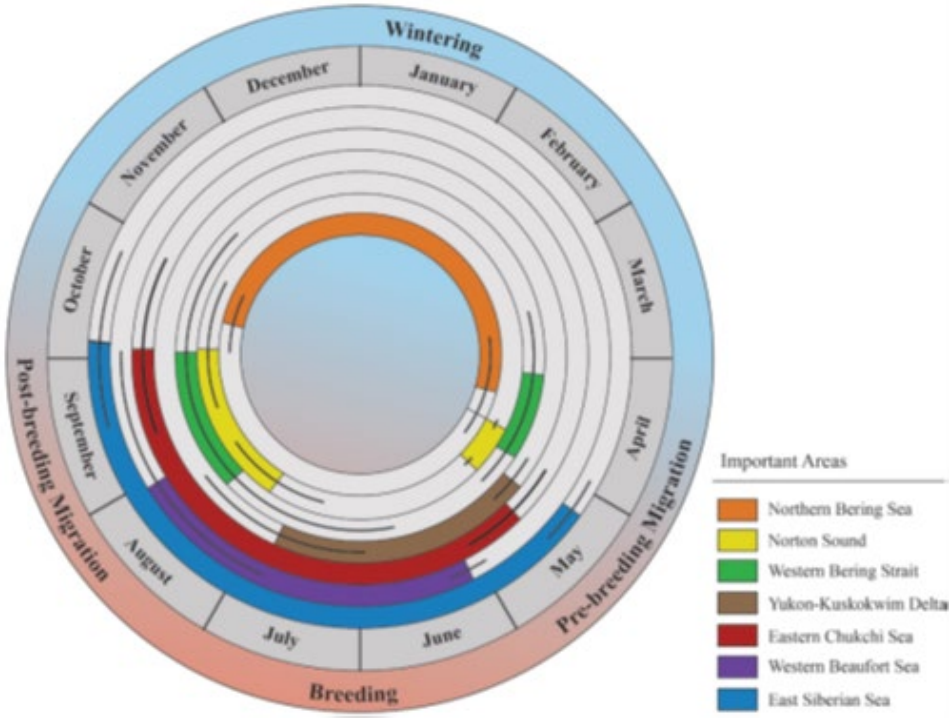

Figure 6. Color filled bars indicate seasonal occupancy at respective important areas (Sexson et al. 2014).

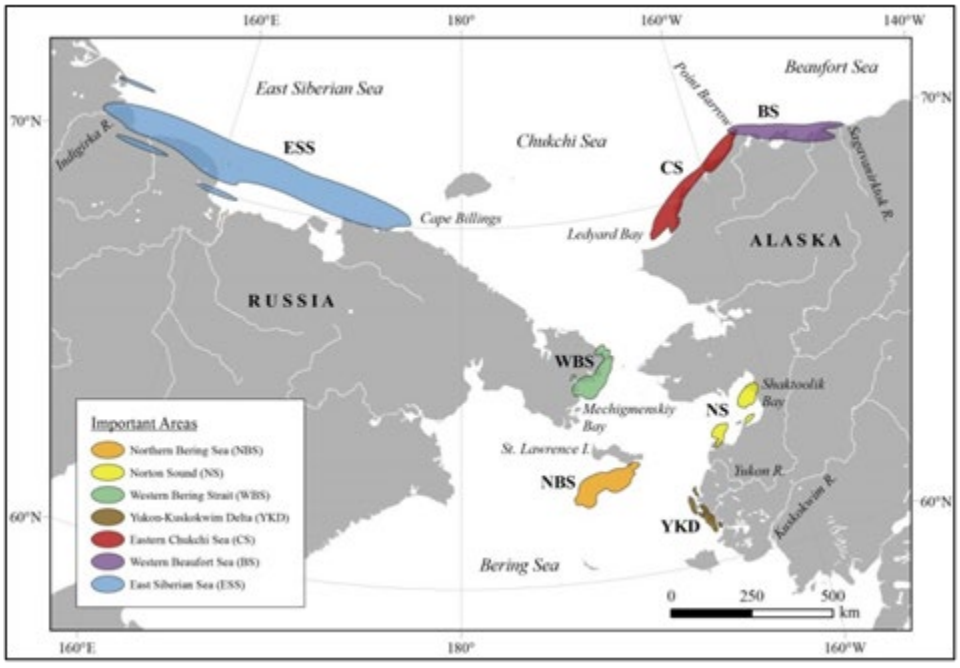

Figure 7. Sexson et al. (2014) used kernel density isopleths (polygons) to identify areas with high probability of occurrence within the range of spectacled eiders.

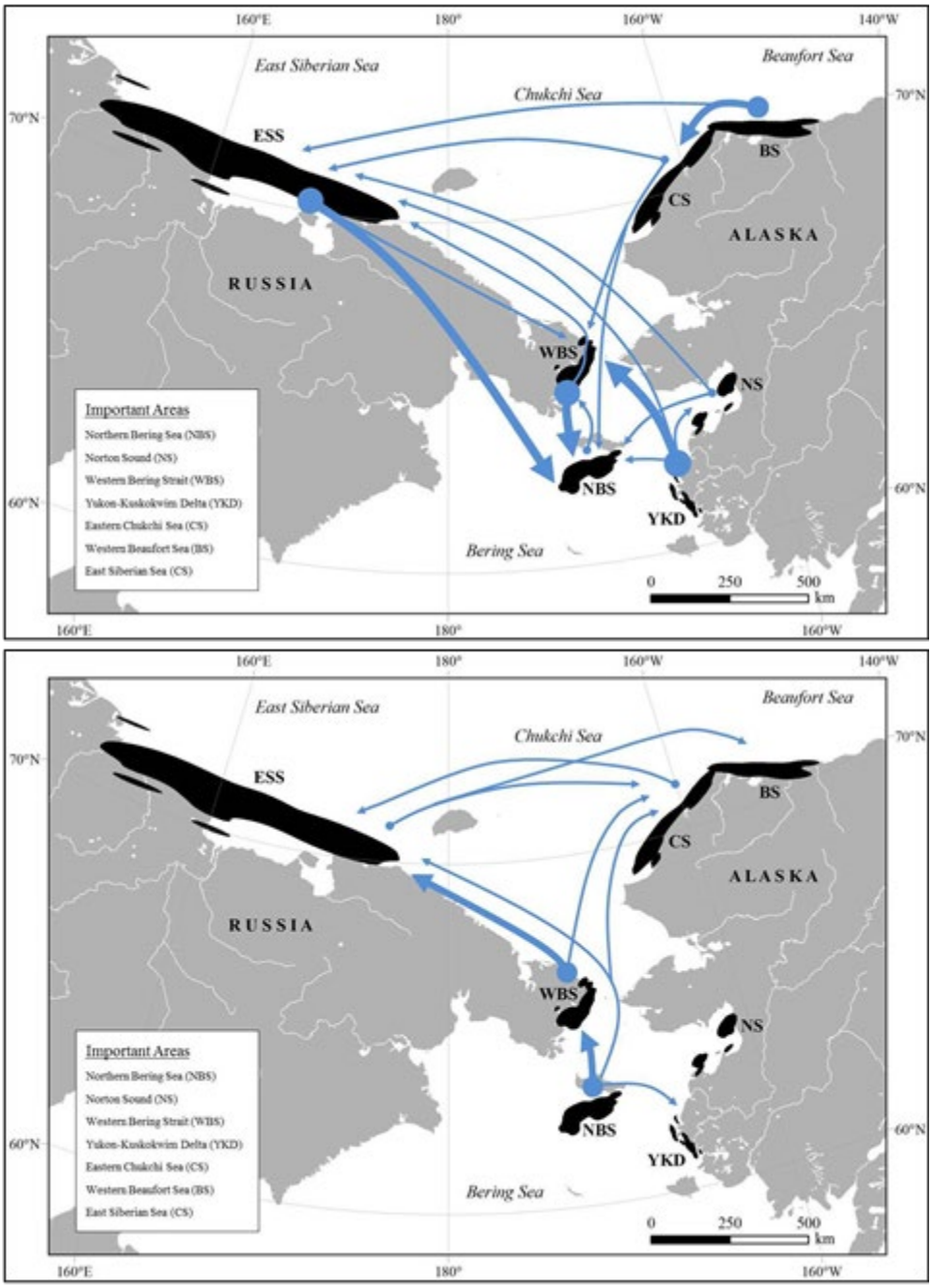

Figure 8. Migration of male spectacled eiders. Blue lines represent direction of migration (not actual routes of migration), pre-wintering, fall migration (top) and post-wintering, spring migration (bottom). Large arrows represent connectivity where greater than 50 percent of departures occurred and small arrows represent connectivity where less than 50 percent of departures occurred (Sexson et al. 2014).

Prey selection may depend on availability and energetic costs for diving (Sexson et al. 2016). During winter, eider distribution is influenced by sea ice conditions, benthic communities, ocean depth, and other abiotic conditions (Petersen et al. 1999). Lovvorn et al. (2003) found spectacled eiders on the wintering grounds preferred one specific clam (*Nuculana radiata*), despite the availability of other prey consumed elsewhere during other parts of the year. Lovvorn et al. (2003) proposed one reason spectacled eiders may be selecting this species over others in the main wintering area could be due to the shallower burial depth and thus the relative ease of accessibility given the diving depth necessary to feed in the wintering area. Petersen and Douglas (2004) describe benthic species assemblages in the wintering area as changing over decades, from 1950 forward; for example, from 1950 to 1988 the bivalve (*Macoma calcarea*) covered the wintering area.

Historical and Current Distribution

Historically, spectacled eiders nested in Alaska discontinuously from the Nushagak Peninsula north to Utqiaġvik (formerly Barrow), and east nearly to Canada's Yukon Territory (USFWS 2010). The three breeding populations of spectacled eider overwinter in the same area south of St. Lawrence Island, where in most years they are constrained to limited openings in the sea ice. Aerial surveys of the global wintering population have been conducted in 1995-1998, 2009 and 2010. While sources of error have not been quantified, the most recent estimate (2010) of the global population spectacled eiders is 369,122, with a 90 percent confidence interval between 364,190 and 374,054 (Larned et al. 2012)

Threats

Although the causes of the spectacled eider population decline are not known, factors that affect adult survival are likely the most influential on population growth rate (Flint et al. 2016). These include lead poisoning from ingested spent shotgun pellets, which may have contributed to the rapid decline observed in the Yukon-Kuskokwim Delta (Franson et al. 1995, Flint et al. 2016), and other factors such as habitat loss, collisions with vertical structures, increased nest predation, over harvest, or oil spill damages during critical migration, wintering, and molting periods, when they are highly concentrated or in flightless flocks (58 FR 27474).

Spectacled Eider Critical Habitat

The USFWS designated critical habitat for the spectacled eider on February 6, 2001 (66 FR 9146). The following primary constituent elements are listed by area and unit, Figure 9. The Yukon-Kuskokwim Delta, Units 1 and 2, include the vegetated intertidal zones and all open water inclusions within this zone. The area in Norton Sound and Ledyard Bay, Units 3 and 4, include all marine waters greater than 16.4 feet (5 meters) in depth and less than or equal to 82 feet (25 meters) in depth, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community. The area in Unit 5 includes all marine waters less than or equal to 246 feet (75 meters) in depth, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community.

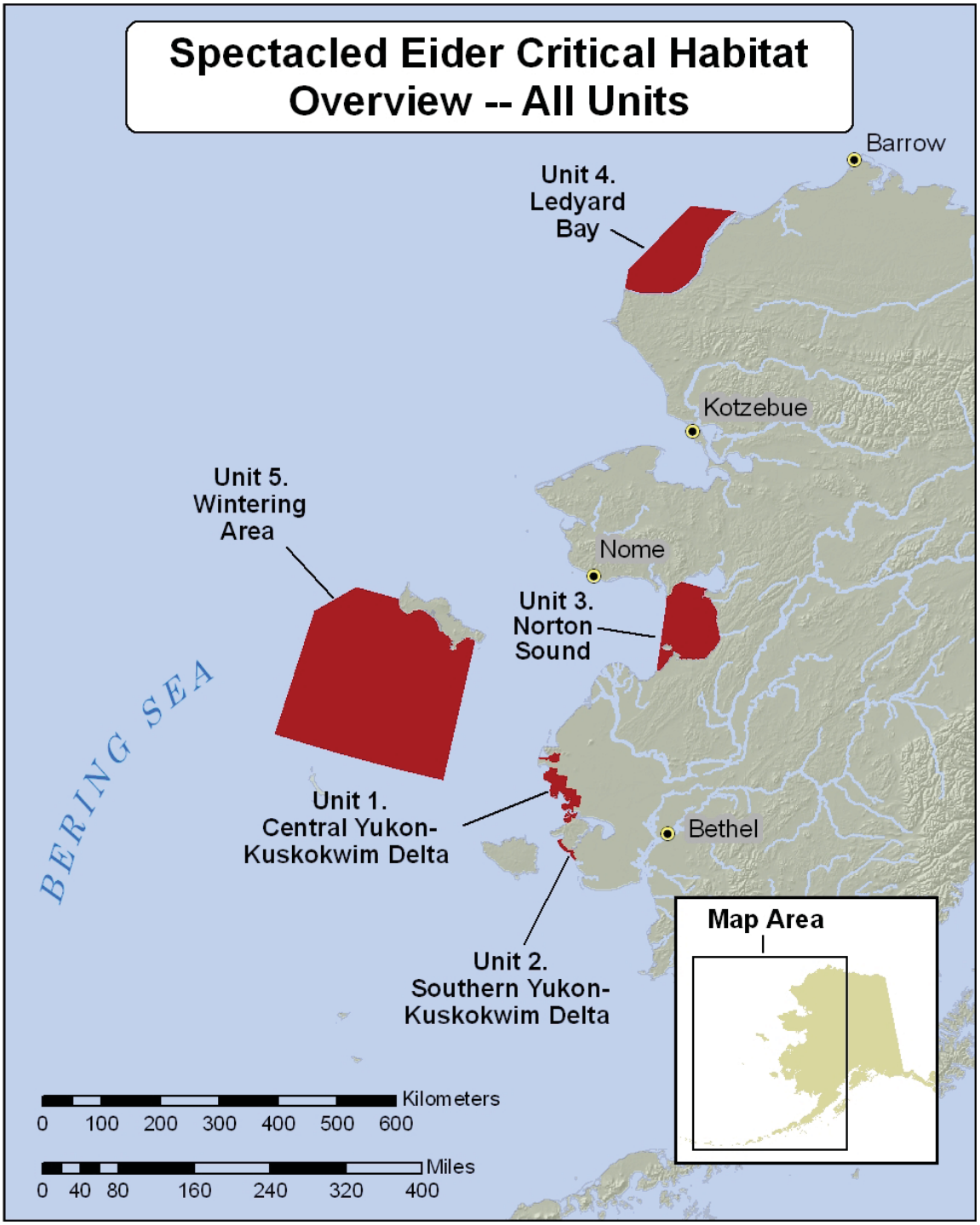

Figure 9. USFWS designated critical habitat for the spectacled eider (66 FR 9146).

Steller's eider

Listing Status

Three breeding populations of Steller's eiders are recognized, two in Arctic Russia and one in Alaska. In general, the Russian-Atlantic breeding population nests west of the Khatanga River in Siberia and winters in the Barents and Baltic Seas, and the Russian-Pacific breeding population nests east of the Khatanga River and winters in the southern Bering Sea and northern Pacific Ocean. The Alaska-breeding population consists of two breeding subpopulations, referred to as the northern and western Alaska subpopulations, and mixes with the Russian-Pacific breeding population in the winter, which combined is often referred to as the Pacific-wintering population (USFWS 2019b).

The Alaska-breeding population of Steller's eiders was listed as threatened under the ESA in 1997 due to the contraction of its breeding range in Alaska, resulting in the risk of becoming endangered due to natural and human-caused factors (62 FR 31748). The Alaska-breeding population was recognized as a distinct population segment because it was considered both discrete and significant based on definitions of those terms in USFWS policy (96 FR 4722, USFWS 2019b). The following summary is based on the USFWS' previous analysis in the species status assessment for Steller's eider (USFWS 2019b), the recovery plan (2020b), and the final determination for Steller's eider critical habitat (50 FR 8850).

Taxonomy and Species Description

The Steller's eider is small sea duck, resembling dabbling ducks in size. It has approximately 60 percent of the body mass of a spectacled eider (Fredrickson 2001, USFWS 2020b). Males while in breeding plumage, from early winter through mid-summer, have a large white shoulder patch contrasting with chestnut breast and belly and a black spot on each side in front of their wings. Their head is white to silver with pale green on the lores, a distinctive black spot surrounding eye, and a dark olive patch flanked by black on the nape. Their neck is black, extending in arrow shape down the back. The non-breeding male plumage resembles female plumage, but maintains white upper wing coverts. Females are dark mottled brown with a white-bordered blue wing speculum. Juveniles are dark mottled brown until fall of their second year, when they acquire breeding plumage. During flight, adult Steller's eiders are distinguished from other eiders by their faster wing beat, small size, black back, white belly, and white-bordered blue speculum.

Life History

The average lifespan of Steller's eiders is 16 to 21 years (ADF&G 2020), with first breeding occurring at 2 to 3 years of age. They spend the majority of their lives in the marine environment, and occupy terrestrial habitats only during the nesting season. Pair formation occurs prior to their arrival on the breeding grounds (McKinney 1965; Fredrickson 2001), where nesting is concentrated in polygonal tundra wetland habitat near Utqiaġvik on the Arctic Coastal Plain (USFWS 2019b). After nesting, Alaska-breeding Steller's eiders migrate along the coast to southwest Alaska, where they undergo a flightless molt along with the larger Russian-Pacific breeding population. During molt, they primarily occupy shallow marine areas with extensive eelgrass beds and/or intertidal mud and sand flats. After molt, they disperse throughout the

Aleutian Islands, Alaska Peninsula, and western Gulf of Alaska including Kodiak Island and lower Cook Inlet until migrating back to the nesting areas in spring (Figure 10). Factors that may affect demographic rates while in the marine environment include quantity and quality of marine invertebrates, availability of shallow, nearshore mudflats and sand flats and/or rocky intertidal areas, eelgrass beds, deep ice-free waters and other habitat characteristics.

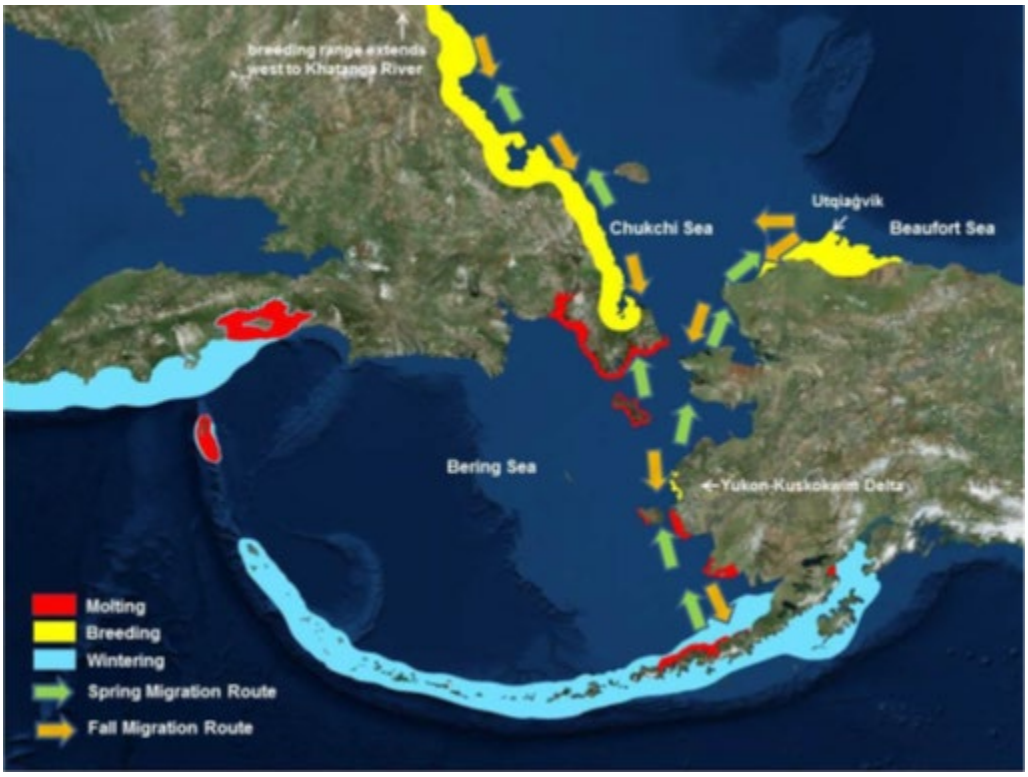

Figure 10. Steller's eider range distribution and migration of the Pacific-wintering population.

Steller's Eider Habitat Description

Breeding Habitat

Steller's eider nests are commonly located on the rims of polygon-shaped tundra near permanent water bodies. They arrive at the nesting grounds in late May to early June and initiate nesting in mid-June, with the exact timing of nesting driven by timing of snowmelt. Mean clutch size is 5.7, based on data collected near Utqiaġvik from 1991 to 2017 (USFWS 2019b). Hatching typically occurs from mid-July through early August, after which females move their broods to adjacent ponds with emergent vegetation, and fledging occurs within 36 days post-hatch (Quakenbush et al. 2004, USFWS 2011a). Timing of departure from the breeding grounds differs between sexes, and varies depending on reproductive success. Males and failed breeding females leave the tundra after females begin incubating, typically from late June to early August and females with successfully reared broods begin to depart in early September (USFWS 2012a).

Molting Habitat
Following departure from the breeding grounds, Alaska-breeding Steller's eiders migrate toward southwest Alaska, where they undergo a flightless molt for 3 weeks or more. Timing of molt depends on age, sex, and breeding success. Males molt first followed by unsuccessful breeding and non-breeding females, and finally successful females and broods (Rosenberg et al. 2014, Martin et al. 2015). Steller's eiders prefer molting areas in shallow waters with extensive eelgrass (*Zostera marina*) beds and intertidal mud and sand flats (Petersen 1981, Laubhan and Metzner 1999).

Molting areas include the north side of the Alaska Peninsula (primarily Izembek Lagoon, Nelson Lagoon, Port Heiden, and Seal Islands), lower Cook Inlet near the Douglas River Delta, northern Kuskokwim Bay, and near Nunivak and St. Lawrence Islands (USFWS 2001; Rosenberg et al. 2014; Martin et al. 2015). Historically, molting birds had also been reported in smaller numbers near Cape Pierce in Bristol Bay (USFWS 1971, Petersen and Sigman 1977). Banding studies indicate individuals molting at Izembek and Nelson Lagoons had a high degree of fidelity to specific lagoons (Flint et al. 2000), and data from Steller's eiders marked with satellite transmitters near Kodiak Island in winter corroborate those findings (Rosenberg et al. 2014).

Wintering Habitat
According to Laubhan and Metzner (1999), thousands of Steller's eiders remain in molting lagoons to over-winter, unless freezing conditions force departure. However, many more individuals disperse to over-winter in waters along the Aleutian Islands, Alaska Peninsula, and western Gulf of Alaska, including Kodiak Island and lower Cook Inlet (King and Dau 1981; Rosenberg et al. 2014; Martin et al. 2015).

During winter, particularly from January to April, a portion of the Pacific-wintering population moves to rocky intertidal areas or deeper nearshore waters, such as areas on the south side of the Alaska Peninsula, the Aleutian Islands, Cook Inlet, and Kodiak Island (USFWS 2006; Rosenberg et al. 2014; Martin et al. 2015), while others stay in intertidal mudflats dominated by eelgrass. Observations at Izembek Lagoon indicate that when intertidal flats at Izembek Lagoon freeze in winter, Steller's eiders move to deeper gravel and mud-bottomed nearshore areas in Cold Bay, up to about 100 feet (30 meters) (Laubhan and Metzner 1999). Martin et al. (2015) also reported substantial use of habitats greater than about 33 feet (10 meters) in depth during mid-winter.

Migration
The timing and location of staging areas during spring migration depends on ice melt. During spring, April to May, Steller's eiders first stage in estuaries along the north coast of the Alaska Peninsula or lower Cook Inlet (Rosenberg et al. 2014). Martin et at. (2015) found that after leaving the Alaska Peninsula, marked birds staged for extended periods of time (21 to 38 days) at Kuskokwim Shoals. Eighty-three percent of Pacific-wintering Steller's eiders marked near Kodiak Island flew to Russian staging areas after staging near Kuskokwim Shoals, and the other birds remained in Alaska for the summer (Rosenberg et al 2014).

Foraging Ecology and Diet

Steller's eiders can dive to up to 30 feet (9 meters) or more, and employ bill-dipping, body tipping, and collecting food items from the surface of water, plants, and mud. The wide selection of food consumed by Steller's eiders suggests they may exploit food based on relative availability. Esophageal contents of Steller's eiders throughout the year at Izembek Lagoon, Kinzarof Lagoon, and Cold Bay, Alaska, included diverse taxa from four classes of invertebrates (Crustacea, Bivalvia, Gastropoda, and Polychaeta), which suggests Steller's eiders are opportunistic in the marine environment (Metzner 1993). During molting, they increase consumption of bivalves and amphipods, suggesting energetic demands are met through consumption of high caloric invertebrates (Petersen 1980; Petersen 1981; USFWS 2019b). As relative generalists, Steller's eiders have been observed consuming herring egg and algae in late winter/spring (Zydelis 2000), and at Dutch Harbor they were observed foraging near fish processing sites where eutrophication increases local productivity of invertebrate scavengers such as amphipods (Reed and Flint 2007).

Historical and Current Distribution

Historically, the species occurred in western Alaska, on the coastal fringe of the Yukon-Kuskokwim Delta. Steller's eiders were considered a common breeding bird at Kokechik Bay in the 1924 expedition to the area (62 FR 31748). The apparent loss of breeding Steller's eiders on the Yukon-Kuskokwim Delta represented the loss of the only subarctic portion of the species' breeding range. The cause(s) of the contraction in range of Steller's eiders in Alaska are unknown.

Nesting in northern Alaska is currently concentrated near Utqiaġvik, Alaska (62 FR 31748). The population of Steller's eiders on the Arctic Coastal Plain is just a few hundred individuals and is very low on the Yukon-Kuskokwim Delta. According to the USFWS (2019b) species status assessment, resiliency of the Pacific-wintering population is undetermined at this time. The western Alaska population remains rare on Yukon-Kuskokwim Delta.

The proportion of the Alaska subpopulation on the northern breeding grounds varies annually; it is possible that some birds nest in Russia in years when they are not present in Alaska. Immigration is possibly a source of recruits for the Alaska-breeding population, with some number of females originating from the Russian-Pacific breeding population that immigrate to the Alaska-breeding population annually, and vice versa. Thus, the abundance and productivity of the Russian-Pacific breeding population could affect the resilience of the Alaska-breeding population.

Movement of individuals could be influenced by the size and demographic rates such as productivity and recruitment of the Russian-Pacific breeding population. However, the lack of abundance and trend estimates, condition of breeding habitat in Russia, and status of natural and anthropogenic factors acting on the resources required for successful breeding and survival of Steller's eiders in Russia results in an undetermined resiliency for this combined population (USFWS 2019b).

Current Threats

Given their low numbers and restricted breeding range, the Alaska-breeding population is at risk from natural and manmade factors. Threats and stressors include disease, predation, disturbance, major storms, changes in the marine environment, ingestion of lead shot, increased predation pressure, hunting, loss or alteration of nesting habitat from development, exposure to oil or other contaminants near fish processing facilities in southwest Alaska, and risk of collisions with fishing vessels or other lighted structures (USFWS 2019b).

Steller's Eider Critical Habitat

In 2001, the USFWS designated critical habitat for the Alaska-breeding population of Steller's eiders (Figure 11). The total area of designated critical habitat is 2,830 square miles (7,330 square kilometers), including the Unit of Yukon-Kuskokwim Delta for nesting, molting and staging areas in the Kuskokwim Shoals and Seal Islands, and molting, wintering, and staging areas at Nelson Lagoon and Izembek Lagoon. The primary constituent elements for molting, staging, and wintering Units are marine waters up to 30 feet (9 meters) deep and the underlying substrate, the associated invertebrate fauna in the water column, the underlying marine benthic community, and where present, eelgrass beds and associated flora and fauna. Regardless of the boundaries of the critical habitat units, all waters greater than 30 feet (9 meters) deep are not critical habitat (66 CFR 8850).

ENVIRONMENTAL BASELINE

Action Area

The implementing regulations for section 7(a)(2) of the ESA define the "action area" as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02).

The action area for this biological opinion includes the areas related to the direct and indirect effects of both the NMFS and EPA actions. The NMFS action area includes Federal waters from 3 to 200 nautical miles from shoreline, and the parallel State groundfish fisheries, in waters from 0 to 3 nautical miles from shore. The parallel State groundfish fisheries are included because State waters are interdependent on the NMFS federally managed fisheries as they open and close concurrent with the Federal fisheries (NMFS 2020). The EPA action area covers the EEZ from 3 to 200 nautical miles from shoreline (EPA 2020; Figure 1). The action area encompasses all areas where Alaska Fishery activities are conducted, including areas transited by vessels to and from fishing grounds in the North Pacific Ocean, including in waters of the BSAI, and GOA.

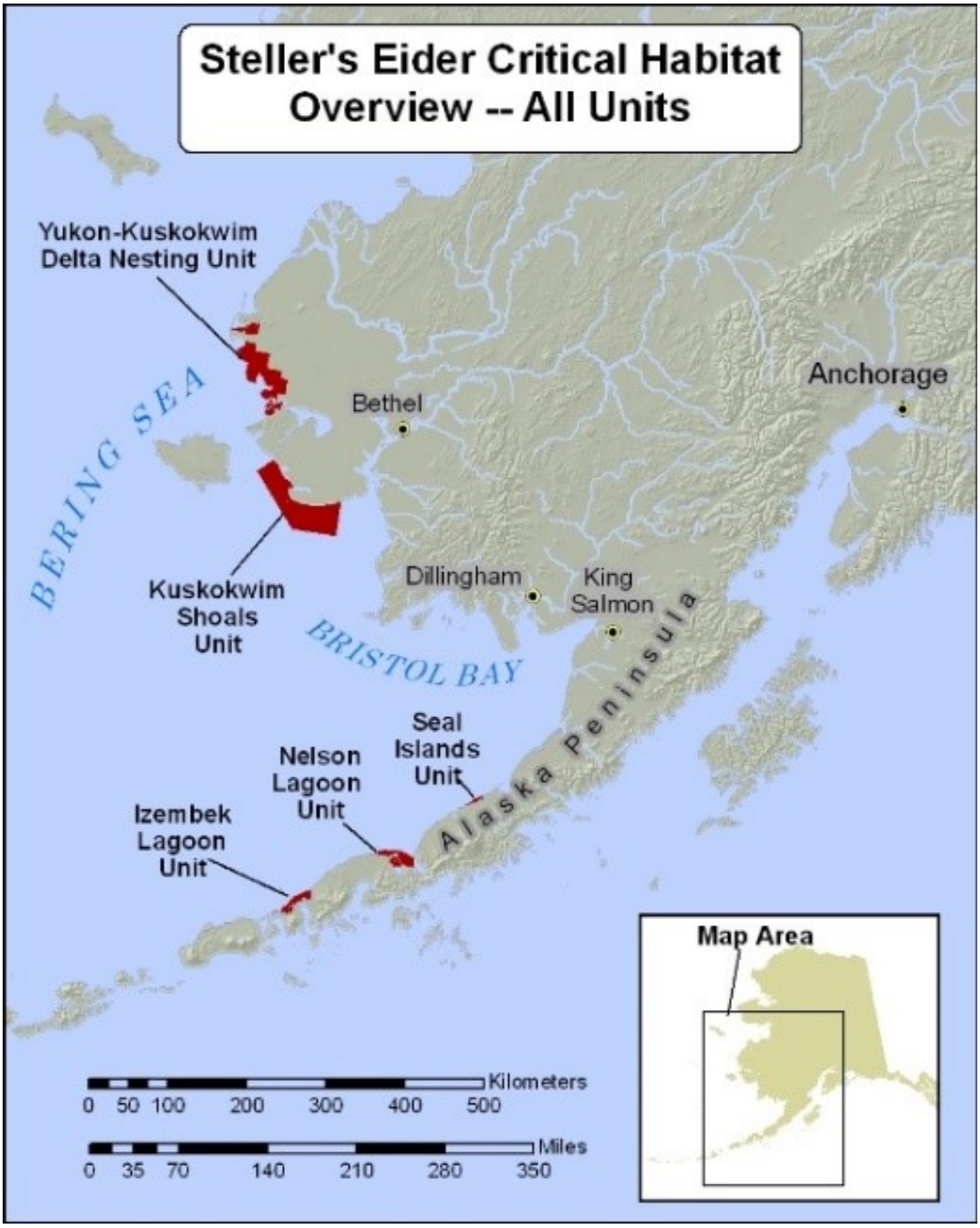

Figure 11. USFWS designated critical habitat for the Alaska-breeding population of Steller's eiders.

Habitat Characteristics of the Action Area

Bering Sea

The Bering Sea is in the northern portion of the action area, which includes portions of the Bering Strait between Russia and the United States. The Bering Sea contains 1.43 million square miles (2.3 million square kilometers) of ocean, of which 44 percent is continental shelf, 13 percent is continental slope, and 43 percent is deep-water (EPA 2020). The western portion of the Bering Sea is deep-water from 1.8 to 2.5 miles (3 to 4 kilometers) in depth and the eastern portion is shallower with a platform of about 328 to 492 feet (100 to 150 meters; BOEM 2020). Ice covers most of the northern and eastern portions of the continental shelf in the Bering Sea during winter and spring (EPA 2020).

Aleutian Islands

The Aleutian Islands are located on the southwestern boarder of the action area and from the southern border of the Bering Sea (BOEM 2020). The Aleutian Islands curve from the Alaska Peninsula southwest to form a volcanic arc of islands that separate the Aleutian trench, which is about 4 to 5 miles (7 to 8 kilometers) deep to the south from the Bering Sea to the north (BOEM 2020).

Gulf of Alaska

The Gulf of Alaska is east of the Aleutian Islands. There is approximately 62,700 square miles (160,000 square kilometers) of continental shelf (EPA 2020), which is narrow and drops steeply 1.8 to 2.5 miles (3 to 4 kilometers) (BOEM 2020).

Existing Conditions in the Action Area

These areas in the North Pacific are exposed to low human disturbance, and are mostly in pristine condition. Some commercial shipping and large and small docks associated with local economies do exist in the action area. Oil spills are infrequent, but do occur, with small spills occurring in relatively greater numbers closer to existing communities along the coasts of Alaska. The USFWS biological opinion for the EPA and U.S. Coast Guard details potential effects from oil spills and response plans (USFWS 2015c).

Previous Consultations in the Action Area

Short-tailed albatross

The NMFS and EPA have formally consulted with USFWS within the range of short-tailed albatross for groundfish fisheries in jurisdictional waters of Alaska, Hawaii, Washington, and Oregon. Listed below is the incidental take estimated for each consultation, and recalculated to a 2-year period for comparison with the GOA and BSAI groundfish fisheries consultation.

- NMFS, GOA and BSAI hook-and-line-and trawl fisheries – incidental take of up to six short-tailed albatross in a 2-year period on the Alaska groundfish fishery (USFWS 2015)
- NMFS, Hawaii Fisheries – three short-tailed albatross over a 5-year period in the Hawaii-based pelagic longline fisheries (USFWS 2012a; converted to over 2 years, that is one)

- NMFS, Pacific Coast Fisheries – up to five (estimated) or one (observed) short-tailed albatross in a 2-year period the NMFS Pacific Coast Groundfish Fishery (USFWS 2017a; over 2 years, that is six)
- EPA, Pacific Coast Fisheries – up to 0.06 per year or one short-tailed albatross over a 10-year period for EPA Pacific Coast Groundfish Fishery (USFWS 2017; over 2 years, that is 0.12 rounded to down)

In addition to the Groundfish Fisheries, the NMFS has formally consulted on the following actions related to the short-tailed albatross within the action area:

- The NMFS formally consulted with the USFWS for the Alaska Fisheries Science Center's research program activities and International Pacific Halibut Commission for up to two short-tailed albatross in a 2-year period (USFWS 2018b).
- The NMFS formally consulted with USFWS on the commercial, sport, and subsistence Pacific halibut fishery in U.S. Convention waters off Alaska within International Pacific Halibut Commission Regulatory Areas on short-tailed albatross, and exempted the incidental take of up to two short-tailed albatross in a 2-year period (USFWS 2018c).

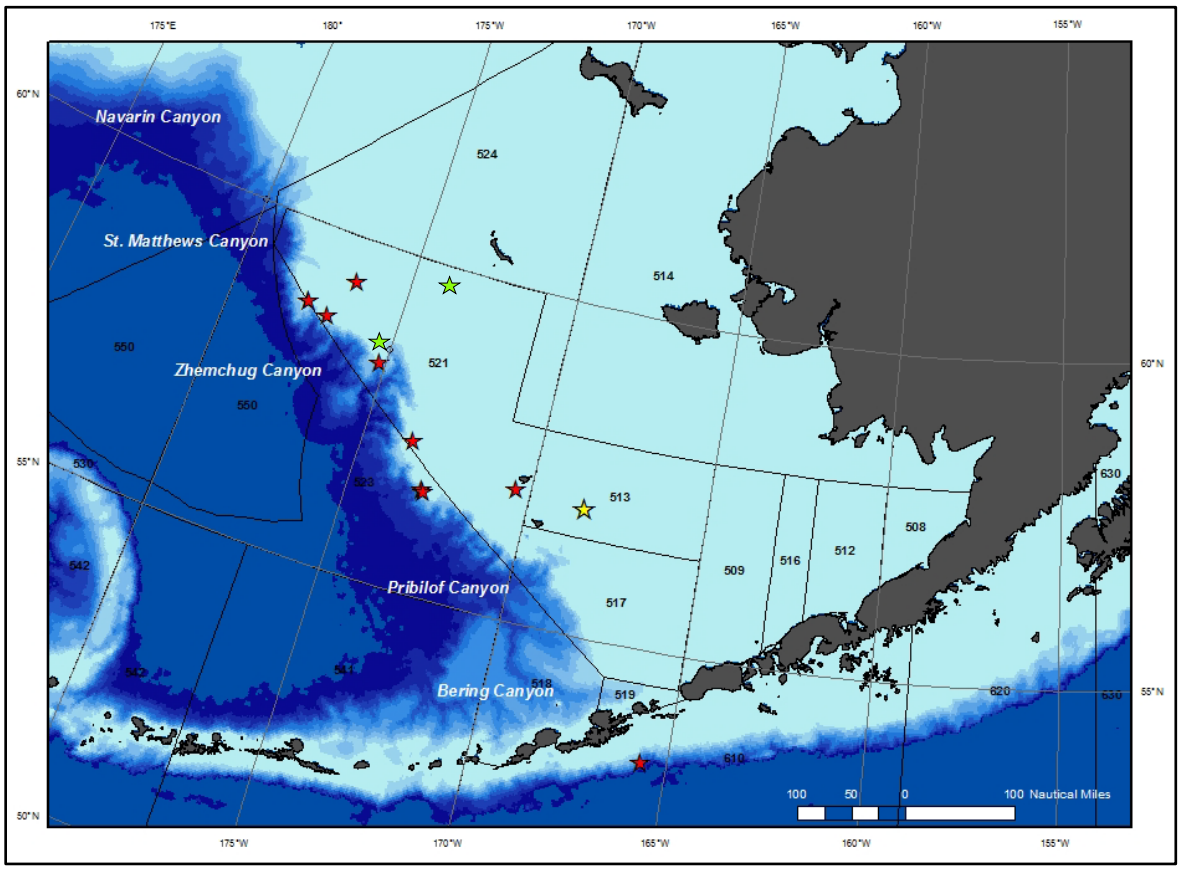

Figure 12. Observed locations of short-tailed albatross takes in Alaska Groundfish Fisheries since 1995 (red stars). The most recent incidents of take of short-tailed albatross are indicated on the map December 2014 (yellow star), September 2020 and October 2020 (green stars) (NMFS Informational Bulletin 31 2015, as cited in NMFS 2020, updated by the USFWS 2020).

Based on these previous consultations with Incidental Take Statements (ITS) within the entire range of short-tailed albatross, the USFWS currently anticipates take of up to 17 short-tailed albatrosses over a rolling 2-year period. This includes the incidental take of up to six short-tailed albatrosses in a 2-year period for the GOA and BSAI fisheries (USFWS 2015). The GOA and BSAI fisheries have not exceeded maximum anticipated incidental take.

Condition (Status) of Species in the Action Area

Short-tailed albatross

The short-tailed albatross is a wide-ranging seabird, found within the action area year round. Short-tailed albatrosses are continental shelf specialists due to their limited diving ability. The continental shelf brings prey close to the surface providing easy access to these birds (Piatt et al. 2006).

In the Gulf of Alaska, they were primarily observed over the continental shelf breaks and slopes. Marine bird surveys conducted by the USFWS and Bureau of Ocean Energy Management (BOEM) in the North Pacific and Arctic from 2006 to 2019 confirm that short-tailed albatrosses were primarily observed near and over deep-water canyons in the Gulf of Alaska, Aleutian Islands, and Bering Sea (Figure 13). The highest number of short-tailed albatrosses was recorded over the outer shelf domain (approximately 328 to 590 feet; 100 to 180 meters) deep along the shelf break, with steep slopes starting at approximately 656 feet (200 meters) and along the shelf break in the Bering Sea and shelf slope canyons. They were sighted occasionally over shallower waters of the Bering Sea at depths of approximately 164 to 328 feet (50 to 100 meters). Additionally, a small number of recent sightings occurred in the Chukchi Sea, suggesting they may be increasing their range into Arctic waters (Kuletz and Labunski 2020, pers. comm., as sited in USFWS 2020).

O'Connor et al. (2013) examined locations of sub-adult short-tailed albatrosses and fishing locations of vessels from 2008 to 2011, and found albatross-vessel association hot spots at several canyons along the Bering Sea shelf. During the non-breeding season, short-tailed albatrosses range along the continental shelf and slope regions of the North Pacific. Seasonal distribution among juveniles shifts from the Bering Sea shelf in the summer to the Aleutian Islands in the winter.

Areas around the Aleutian Islands and Bering Sea are also important, particularly during the non-breeding season for feeding and molting. Data from albatrosses captured at sea in the Aleutian Islands showed that most birds were undergoing extensive flight feather molt (R. Suryan and K. Courtot, unpublished data).

Spectacled eiders

Spectacled eiders are found mostly in the northern portions of the North Pacific Ocean, including the Bering Sea portion of this action. The majority of the action area that intersects the range of spectacled eiders includes the western Bering Strait to northern Alaska and south from the Yukon-Kuskokwim Delta to St. Matthew Island, including areas around St. Lawrence Island.

Spectacled eiders migrate off shore over water from breeding areas to staging areas to wintering areas near St. Lawrence Island (Figure 14; Sexson et al. 2014). The location and timing of migration is determined by season and sea ice cover. The greatest concern for spectacled eiders is during migration and over winter. Less risk may occur during the peak breeding and nesting season in May and June, although non-breeding spectacled eiders likely remain in marine waters during that time.

Steller's eider

Similar to spectacled eiders, Steller's eiders nest in the summer in coastal areas of northern Russia and Alaska, and, more rarely, on the Yukon-Kuskokwim Delta. In fall, they molt in relatively shallow waters along the western coast of Alaska and along northern portions of the Alaska Peninsula (Figure 15). As winter approaches, some Steller's eiders remain in molting areas, while others move west toward the Aleutian Islands, south to the southern side of the Alaska Peninsula, and east toward Kodiak Island and areas along the lower Cook Inlet where they over-winter until ice melt signals their spring migration in the opposite direction.

Changing Conditions in the Action Area

One of the unique features in the Bering Sea is the pack ice, which covers eastern and northern portions of the continental shelf in winter and spring. The NOAA's Ecosystem Status Report (2019) indicates over the previous 4 years, the mean extent sea ice in the Bering Sea has been lower than it has been in any year on record since 1979 (Figure 16).

Recent changes in ocean temperature and related ecological shifts are driving where the commercially viable catch occurs (NMFS 2020), with many target species moving further north. This northern shift in viable catch has resulted in a corresponding northward shift in vessel activity. For example, harvest of Pacific cod in regulatory zones 514 and 524 has shifted from south of spectacled eider critical wintering habitat in 2016, progressively further north in 2017, 2018, and 2019 (Figure 17).

Sea ice retreat could potentially open new seabird foraging habitat or provide new migration corridors between the Arctic and Pacific Oceans. A juvenile short-tailed albatross was sighted in the Arctic (Chukchi Sea) and evidence from other species (e.g., northern gannet [*Morus bassanus*], ancient murrelet [*Synthliboramphus antiquus*]) indicates some bird species might use ice-free portions of the Arctic as migration or population dispersal routes (Gall et al. 2013; USFWS 2015).

Changes in sea ice may also affect spectacled eider winter distribution. The core wintering area used by marked birds in previous years of satellite telemetry studies is about 43 miles (70 kilometers) southwest of St. Lawrence Island. Spectacled eiders marked with satellite transmitters, from 2008 to 2010, moved to the core area wintering area in December, even when sea ice was not fully developed, and remained there through April (Cooper et al. 2013).

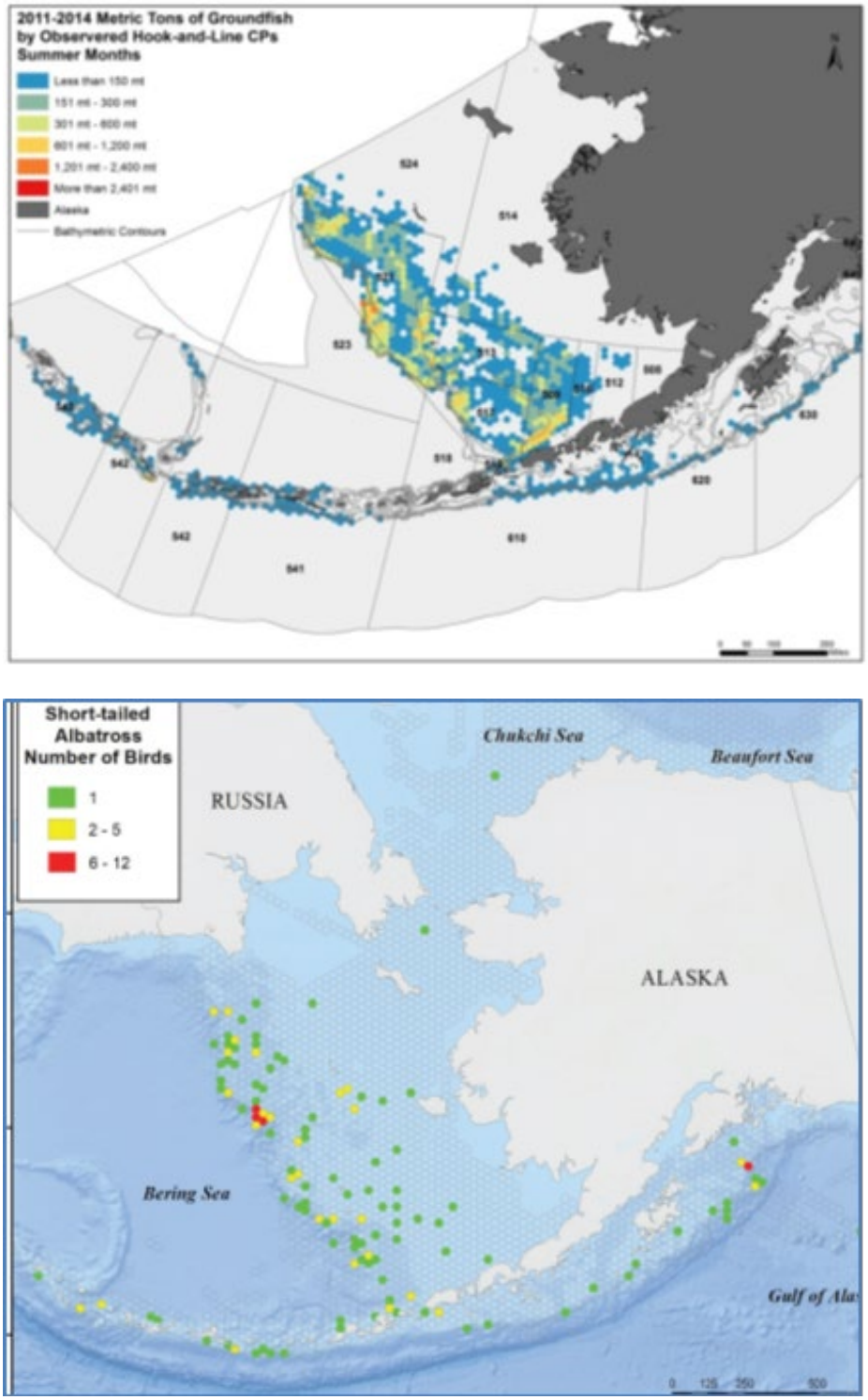

Figure 13. Top figure, displays the groundfish hook-and-line fisheries in summer (NMFS 2020). Bottom figure, displays the locations of short-tailed albatross recorded during at-sea surveys 2006 to 2019 (USFWS 2020).

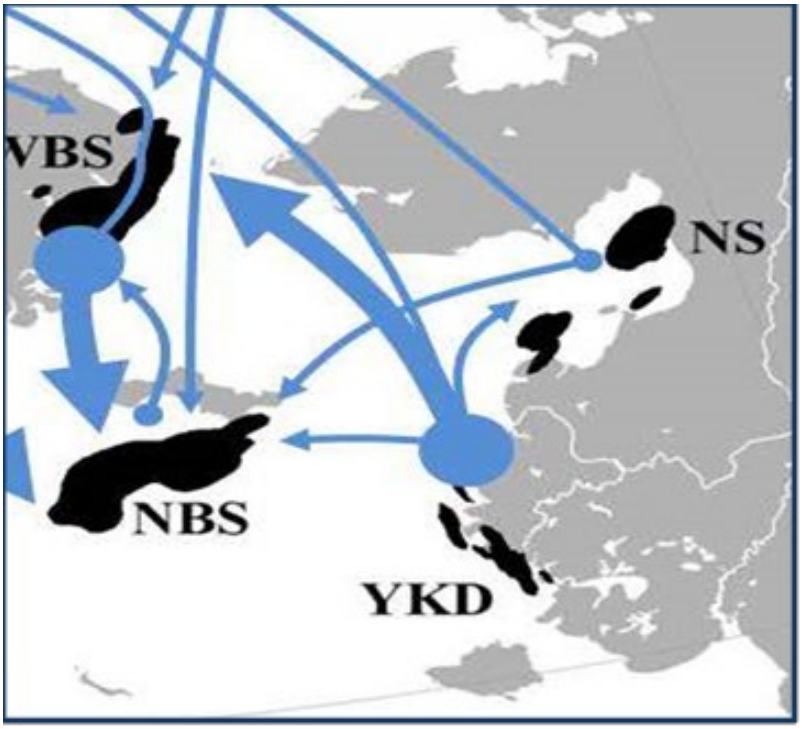

Figure 14. Directional migration of spectacled eiders. They winter in the northern Bering Sea (NBS) near St. Lawrence Island (Oct/Nov through April, use the western Bering Strait (WBS) and Norton Sound (NS) during pre-migration and post-migration (March to May and July to Oct/Nov), and stage near the Yukon-Kuskokwim Delta (YKD) and northern breeding areas (May to June; Petersen et al. 1999; Lovvorn et al. 2003; Sexson et al. 2014).

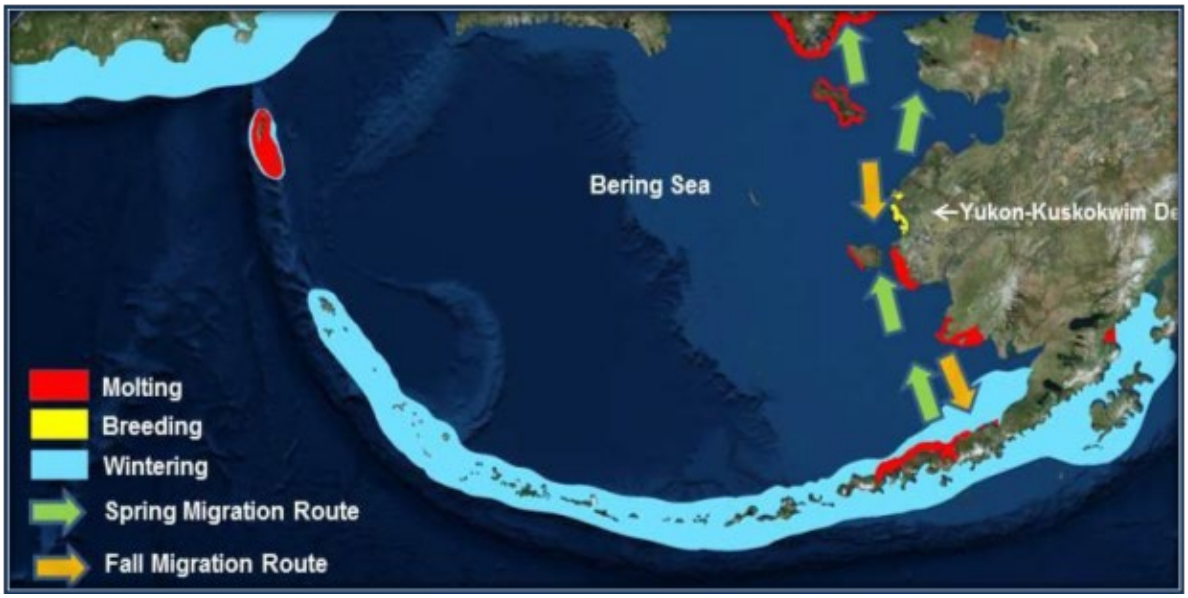

Figure 15. Over water migration and habitats of Steller's eiders.

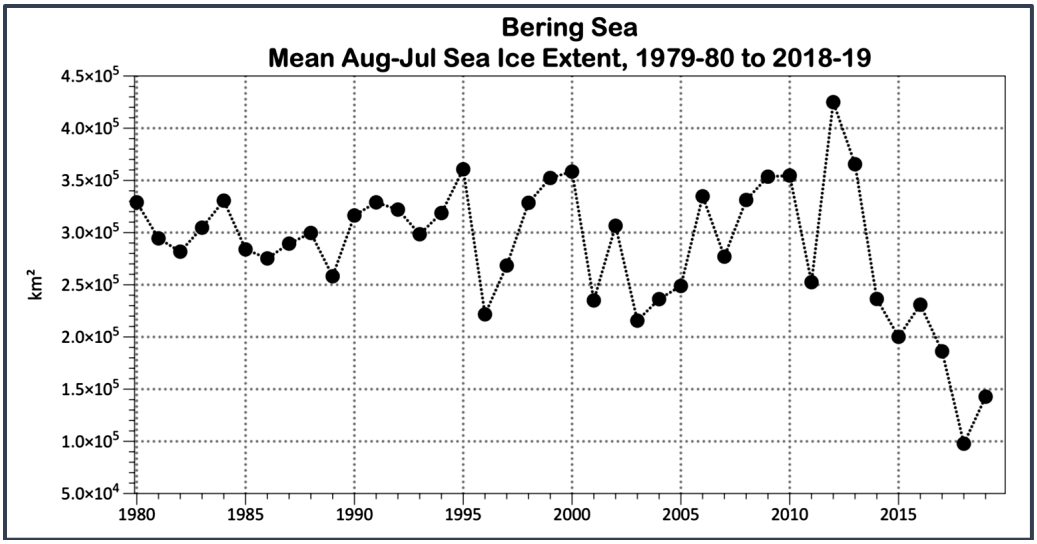

Figure 16. Graphic representation of extent of sea ice development in the Bering Sea, overwinter from August 1979 to July 2019 (NOAA 2019).

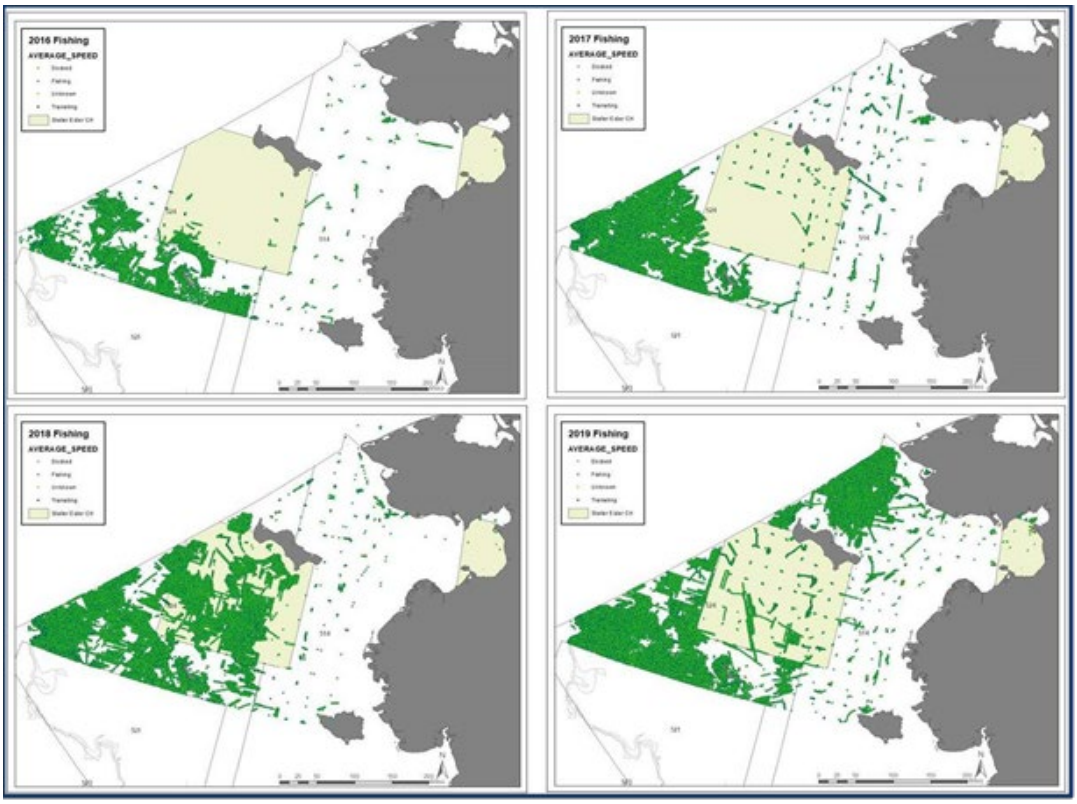

Figure 17. Illustration of fishing activity moving north, in the regulatory areas 514 and 524 from 2016 to 2019. Bright green tracks represent movement of individual vessels actively fishing. Lighter green areas depict spectacled eider designated critical habitat (Data source: NMFS Alaska Region In-season Management, 2020 as cited in NMFS 2020).

More recent data suggest that the winter distribution of spectacled eiders is changing, likely as a result of decreased extent of sea ice in the Bering Sea in late winter. Spectacled eiders wintering patterns were studied from 2018 to 2020. In May 2018, 39 spectacled eiders from the Yukon-Kuskokwim Delta were instrumented with satellite transmitters. The study found three apparent patterns observed over the winter in 2018/2019. Some marked individuals remained in the core wintering area south of St. Lawrence Island where they moved less than 75 kilometers once they were settled in (n = 5), while others moved closer to St. Lawrence Island until spring (n = 12), and the rest of the marked individuals moved north of St. Lawrence Island as far northwest as the coast of Chukotka (n = 7; USFWS, unpublished data). Northward movements, in winter 2018/2019, coincided with northward retreat of sea ice, which occurred earlier compared to winters 1996 to 1999 and 2008 to 2011, when other cohorts of spectacled eiders were tagged with satellite transmitters (USFWS, unpublished data).

Sea ice conditions in the Bering Sea in winter 2019/2020 differed from the previous year; ice was more consistent in the traditional core wintering area south of St. Lawrence Island. Although a smaller number of spectacled eiders transmitters functioned to end of winter, relative to the previous year (n = 16 in November to n = 2 in March), their locations suggested that eiders remained south of St. Lawrence Island until March, when sea ice began to retreat. Overall, in winter 2019/2020 there was little variation in latitude of spectacled eider locations, which is consistent with the hypothesis that changes in winter distribution are related to sea ice concentration and extent (USFWS, unpublished data).

Additionally, an aerial survey conducted in March 2020 documented winter flocks in closer proximity to St. Lawrence Island's south and east coasts than in previous years when the aerial survey was conducted (1995 to 1998, 2009, and 2010; USFWS, unpublished data).

During winter, spectacled eiders congregate the open water areas (polynyas) where they forage to the sea floor for winter prey, particularly bivalves. Peterson et al. 2004 suggest spectacled eiders in this area forage in waters greater than 130 feet (40 meters) in depth. The open water and surrounding sea ice both benefit spectacled eiders; the openings for diving and the sea ice to rest and to reduce the energetic costs of thermoregulation.

Sea ice extent and severity may affect spectacled eider survival. Using mark-recapture data from 1992 to 2004, Flint et al. (2016) found evidence that sea ice severity, in the Bering Sea wintering area, negatively influences adult female survival by 10 to 22 percent compared to years with relatively mild sea ice conditions. Using a longer-term data set, Christie et al. (2018; Figure 18) demonstrated a negative relationship between extremely high sea ice cover and annual female survival. Reduced survival in years of extreme sea ice conditions is hypothesized to be a result of poorer body condition caused by inadequate forage availability due to sea ice coverage over preferred foraging areas and increased energetic requirements (Lovvorn et al. 2009, 2014). Christie et al. (2018) also found evidence suggesting that extremely low sea ice extent in the wintering area, which has occurred more frequently in recent years, may result in lower adult female survival rates (Christie et al. 2018). However, the mark-recapture time series only

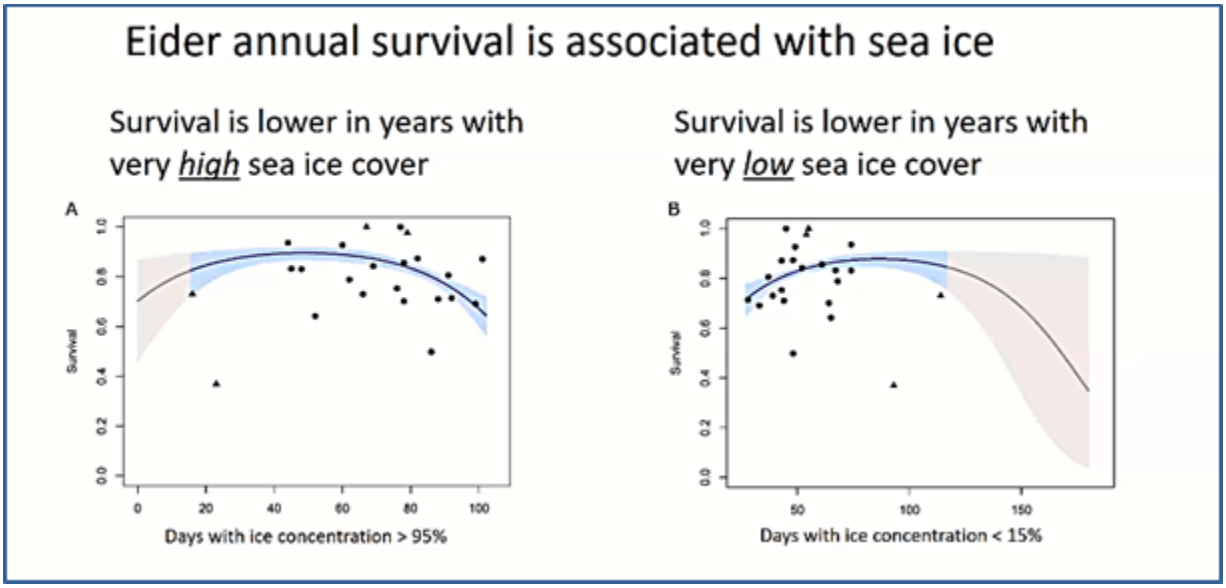

Figure 18. Survival of adult female spectacled eiders with confidence intervals shaded: A) extreme ice conditions, number of days per year with sea ice concentrations greater than 95 percent at the wintering area, and B) low ice conditions, number of days per year with sea ice concentrations less than 15 percent.

included 2 years of low sea ice concentration (greater than 100 days of sea ice coverage of less than 15 percent), resulting in a high uncertainty in this relationship (Christie et al. 2018).

Marine temperatures are getting warmer, resulting in formation of sea ice later in the season and breakup of sea ice occurring earlier. Freeze and thaw conditions dictate the timing of migration, so changes in sea ice formation and breakup can affect the presence of spectacled eiders. If migration timing varies too far from normal, prey in critical staging areas may not be available in previous quantities or locations. In other words, primary critical elements necessary for productive feeding, breeding, or sheltering may also be undergoing climate related shifts.

Condition (Status) of Critical Habitat in the Action Area

Due to the relatively limited human presence in the North Pacific Ocean, the primary constituent elements of critical habitat for eiders have remained intact. Spectacled eider and Steller's eider critical habitats occur along the coast of Alaska (Figure 19). Critical habitat has not been designated for the short-tailed albatross.

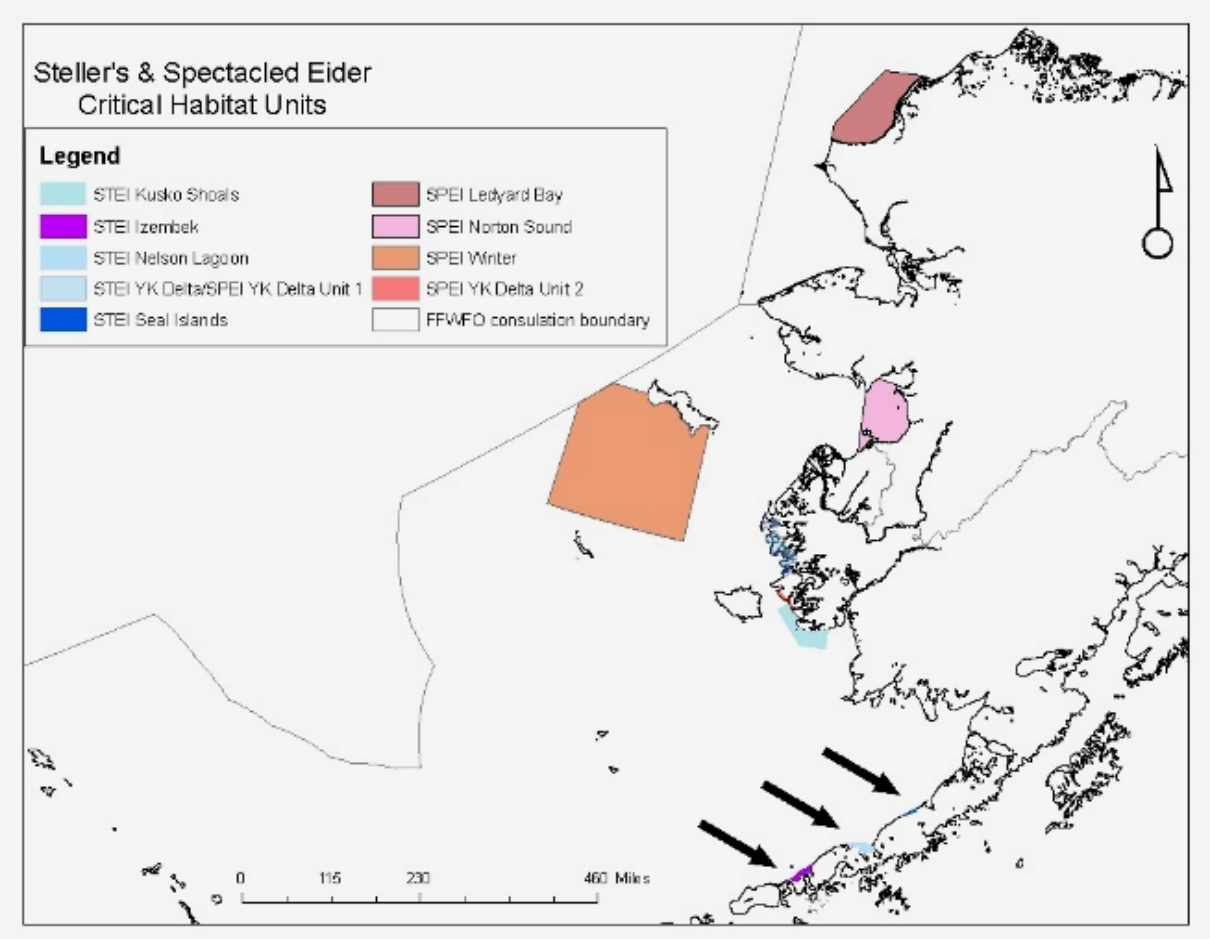

Figure 19. Critical habitat (Rizzolo et al. 2020, unpublished data).

Spectacled Eider Critical Habitat in the Action Area

The NMFS (2020) permit for the GOA and BSAI groundfish fisheries does not restrict fishing in critical habitat. The EPA has not previously considered permitting discharge within 1 nautical mile critical habitat, but is currently considering to permit discharge from June 10 to December 31, within and near Unit 5 of spectacled eider critical habitat. Spectacled eider critical habitat in Units 1, 2, and 4 are located outside the project boundary. Units 3 and 5 are within the action area. Primary constituent elements in Unit 3, Norton Sound, include all marine waters greater than 16.4 feet (5 meters) in depth and less than or equal to 82.02 feet (25 meters) in depth, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community.

Unit 3, Norton Sound, is critical habitat for spectacled eiders, molting occurs from July through October. Females from the Yukon-Kuskokwim Delta population primarily molt in Unit 3 (Sexson et al. 2016). The distribution of molting spectacled eiders in Norton Sound seems to be shifting eastward from the 1990's to 2011 (Sexson et al. 2016; Figure 20). The shifts in molting

locations may be an indication of changes in availability of benthic prey (Sexson et al. 2016). Since the majority of females from the Yukon-Kuskokwim Delta population molt in Norton Sound, and adequate food resources during molt are necessary for feather growth and survival, ecosystem shifts in this molting area (Unit 3) may affect population dynamics.

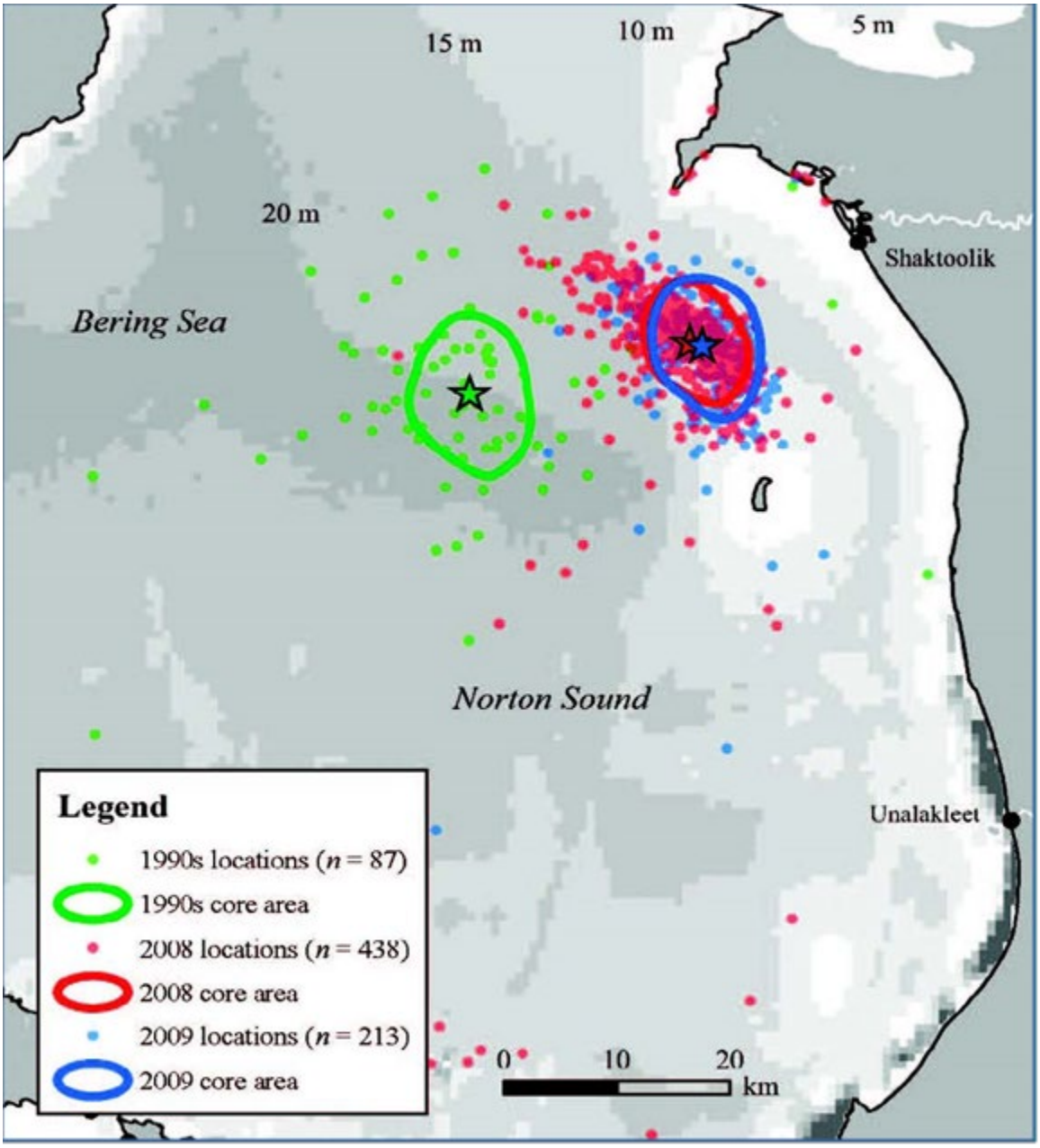

Figure 20. Unit 3, Norton Sound, observed molting distribution of spectacled eider locations 1993–1995, 2008, and 2009. Stars represent median center (Sexson et al. 2016).

Unit 5 is located between St. Lawrence and St. Matthew Islands. Primary constituent elements in Unit 5 include all marine waters less than or equal to 246 feet (75 meters) in depth, along with associated marine aquatic flora and fauna in the water column, and the underlying marine benthic community. According to EPA (2020), nautical charts indicate the maximum depth surrounding Unit 5 is 37 fathoms (about 222 feet, 65 meters), so the entire area meets the specified depth for critical habitat. Spectacled eiders from all three known breeding populations congregate in Unit 5 in large and dense flocks in openings in the pack ice when sea ice is extensive, and in more dispersed flocks in open water when sea ice is less extensive (Larned et al. 1995; USFWS 1999; USFWS, unpublished data). The entire world population of spectacled eiders likely winters in Unit 5. However, data from marked spectacled eiders from 2018 to 2020, as described above, indicate that the distribution of spectacled eiders in years with low sea ice extent may be shifting (USFWS, unpublished data).

Northern Bering Sea Research Area

There are a number of constraints related to the fishing activities (e.g., water depth, safety, and permit restrictions), which limit areas permitted by NMFS and EPA. Pacific Cod is expected to be the primary viable catch for fishing in Unit 5, permitted vessels within Unit 5 could target cod or non-cod species, depending on the Fishery Management Plan. The Fishery Management Plan describes the area between St. Matthew and St. Lawrence Islands as designated for the Northern Bering Sea Research Area (NBSRA; EPA 2020). The entire area of Unit 5 spectacled eider critical habitat falls within the NBSRA (Figure 21).

The type of fishing gear that may be used within the NBSRA is restricted; nonpelagic (bottom) trawling operations are prohibited, except as allowed through exempted fishing permits under 50 CFR 679.6. Exempted fishing permits must be consistent with a Fishery Management Plan Council approved research plan to examine the effects of bottom trawling on the management of crab species, marine mammals, ESA-listed species, and subsistence needs for Western Alaska communities (NPFMC 2018). The area directly surrounding St. Lawrence Island is designated as the St. Lawrence Island Habitat Conservation Area (HCA). The use of nonpelagic trawl gear is also prohibited in the HCA. However, pelagic trawl vessels could target non-cod species in Unit 5 (EPA 2020).

The EPA (2020) describes the longline fishing fleet in the Bering Sea as consisting of about 20 vessels with up to 5 vessels expected to be in critical habitat, Unit 5, at the same time. Fishing depths normally range from 180 to 300 feet (55 to 91 meters). Longline gear is up to 10 miles (16 kilometers) in length. The concentration/number of vessels occurring in any one area is limited to avoid entanglement between nets. The length of time between settings and hauling in lines is 4 to 6 hours. Vessels are active up to 20 hours a day and are expected to remain in the area until ice develops and the area becomes inaccessible, typically November or December. Vessel speed ranges from 2.5 to 10 knots. Vessels that produce less than 10 million pounds (5,000 short tons or 4,500 metric tons) of waste annually (practically, all freezer longline catcher processors) are not required to grind their waste.

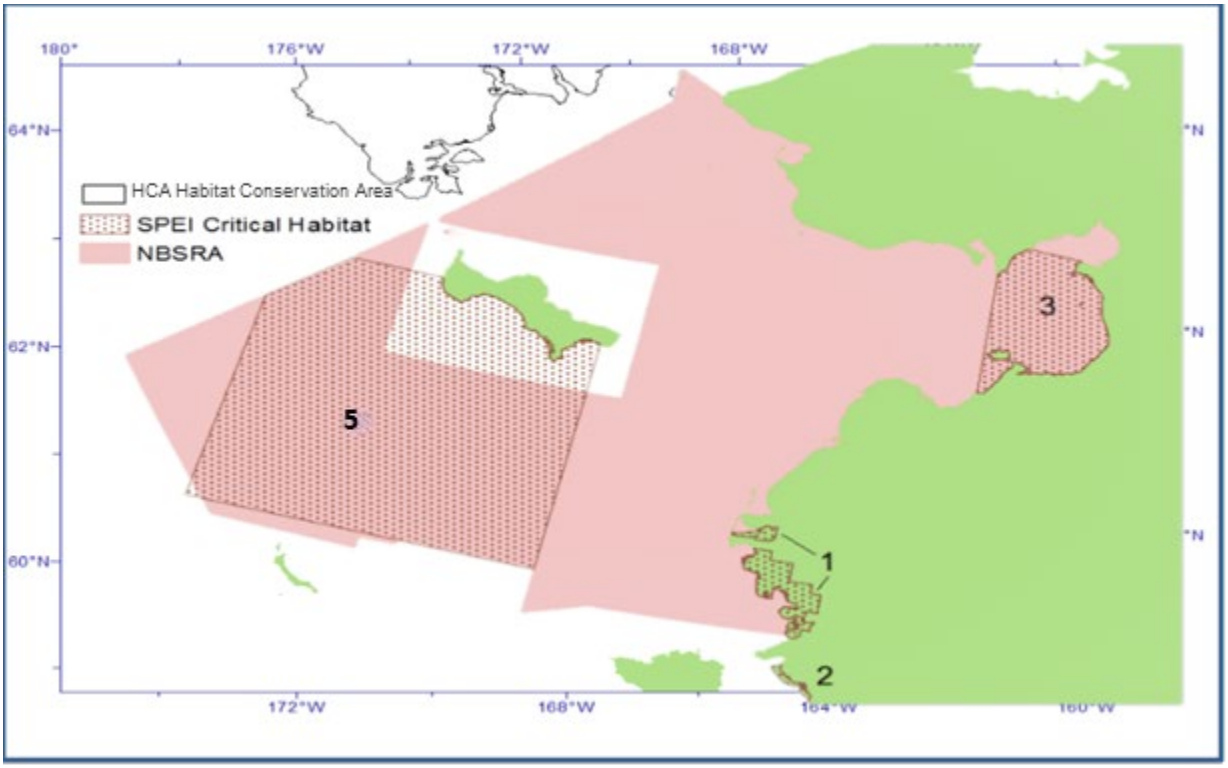

Figure 21. Unit 5 spectacled eider critical habitat located with the Northern Bering Sea Research Area (NBSDA; NMFS 2012).

Steller's Eider Critical Habitat in the Action Area

The ocean depth of Steller's eider critical habitat is 30 feet (9 meters). According to the NMFS (2020) biological assessment, the Seal Islands, Izembek Lagoon, and Nelson Lagoon units are too shallow and are not accessible to fishing vessels, and the Kuskokwim Shoal Unit is too close to shore, so that fishing does not occur. The EPA permit will not allow discharge within 1 nautical mile of Steller's eider critical habitat. However, commercial vessels may be traveling near critical habitat for Steller's eider during important life stages.

Recovery

The recovery criteria and recovery actions, as identified in the most recent recovery plans, are listed below, with those specific to this consultation in italics. See the analysis on *Effects on Recovery* section below for further discussion on these actions.

Short-tailed albatross recovery criteria

The short-tailed albatross may be delisted under the following conditions (USFWS 2008):

- The total breeding population of short-tailed albatross reaches a minimum of 1,000 pairs; (population totaling 4,000 or more birds); AND

- The 3-year running average growth rate of the population as a whole is greater than or equal to 6 percent for at least 7 years; AND
- At least 250 breeding pairs exist on 2 island groups other than Torishima, each exhibiting greater than or equal to 6 percent growth rate for at least 7 years; AND
- A minimum of 75 occur on a site or sites other than Torishima Island and the Senkaku Islands.

The USFWS recommends the following recovery actions for short-tailed albatross (USFWS 2020):

- Support ongoing population monitoring and habitat management on Torishima
- Monitor the Senkaku population;
- Conduct telemetry studies to determine at-sea habitat use;
- Establish one or more nesting colonies on non-volcanic islands;
- Continue research on fisheries operations and mitigation measures;
- Conduct other research that will facilitate recovery;
- Conduct other management-related activities;
- Conduct outreach and international negotiations as appropriate;
- Develop models and protocols as needed

The NMFS and USFWS are working with the commercial fishing industry to minimize injury and mortality of seabirds in U.S. waters. The NMFS' 2004 revised seabird bycatch regulations require Alaska longline vessels over 26 feet (7.9 meters) to deploy streamer lines while setting gear. The complete seabird avoidance measures for hook-and-line gear can be found at § 679.24(e) and 679.51(e)(1)(viii)(F); see § 679.24(e)(1) for applicable fisheries (74 FR 13358, March 27, 2009; Table 20 to 50 CFR part 679). The USFWS has funded and NMFS has distributed streamer lines to commercial vessels, and both agencies continue to identify short-tailed research and outreach opportunities related to the fisheries.

Spectacled eider recovery criteria

The spectacled eider may be delisted when all three breeding populations are increasing as judged under the following conditions (USFWS 1996):

- Bayesian analysis indicates the over-protection loss exceeds the under-protection loss, and the minimum estimated population size is greater than or equal to 6,000 breeding pairs; OR
- Minimum estimated population size is greater than or equal to 10,000 breeding pairs over greater than or equal to 3 surveys; OR
- The minimum estimate of abundance exceeds 25,000 breeding pairs in any survey.

The USFWS recommends the following recovery actions for spectacled eider (USFWS 2010).

Reduction of habitat destruction includes reducing:

- Exposure to lead;
- Predation on the breeding grounds;
- Hunting and shooting mortality;

- Researcher disturbance;
- The effects of contaminants;
- Exposure to oil in the marine environment (provide updated information regarding eider concentration areas and spill response strategies to appropriate agencies/organizations so response plans can be revised and identify rehabilitation requirements/conditions and obligations and protocols for handling oiled birds);
- The effects of human activities on spectacled eiders in marine habitats (evaluate and reduce impacts of commercial fishing on spectacled eiders in the Bering Sea, particularly in critical habitat south of St. Lawrence island);
- The effects of eider collisions with structures (determine best lighting regime for boats).

Support general research, including:

- Evaluating the potential effects of climate change/regime shift (how may changes in winter ice conditions affect eiders);
- Understanding the effects of disease and parasites;
- Investigating interspecific competition;
- Monitoring the population (e.g., survey use of the wintering area);
- Assessing cumulative effects of human development on spectacled eider;
- Supporting spectacled eider research and management in Russia.

Steller's eider recovery criteria

The Alaska-breeding population of Steller's eider may be delisted under the following conditions:

- Must be less than a 1 percent probability of extinction in the next 100 years; AND
- The subpopulations in each of the northern and western subpopulations must have less than 10 percent probability of extinction in 100 years and are stable or increasing.

The USFWS recommends the following future actions for Steller's eider (USFWS 2020b):

- Gather information to improve evaluation of the distinct population segment in the future;
- Continue to improve survey methods and analyze estimates of abundance and trend for both the Alaska- and Pacific-Russian breeding populations;
- Gather additional data on connectivity of Alaska- and Pacific-Russia breeding population;
- Continue to address concerns in the Alaska-breeding range, such as collisions, shooting, ingestion of lead shot, and expansion of community infrastructure into Steller's eider nesting habitat.

EFFECTS OF THE ACTION

Effects on Short-tailed Albatross

Short-tailed albatrosses visit and follow commercial fishing vessels that target Pacific Halibut, Sablefish, Pacific Cod, and pollock (Suryan et al. 2007b; USFWS 2008). GOA and BSAI

groundfish fisheries primarily use two types of gear: longline with baited hooks and trawl lines with nets. The majority of short-tailed albatross mortality occurs incidental to the longline fishery in the Bering Sea.

The longline fishery uses baited hooks. Short-tailed albatross are attracted to the bait on hooks when the gear is set and thus are at risk of becoming bycatch. Birds that attempt to steal bait can be hooked, pulled underwater as the mainline is set, and drowned. They may also sustain injuries from interactions with baited hooks during the process of setting and hauling the mainline, which could impair their ability to fly or forage, ultimately resulting in mortality. Discarded fish offal is an attractant to albatross, with the likelihood of bycatch increasing when offal is dumped in proximity to hooks in the water. Bycatch caused by hook-and-line gear is the primary source of short-tailed albatross injury and mortality associated with the proposed action.

Trawl fisheries use three types of cables that present a potential hazard to short-tailed albatross, warp cables that hold either side of the trawl and netsonde, third wire net monitoring system cables, and sometimes a fourth cable for video. Warp cables create a bird-strike hazard for birds in close proximity to fishing vessels, where the warp cables enter the water. Third wire cables extend farther from the vessel, up to 295 feet (90 meters) away, with the aerial extent of cables being a function of net depth. Although there are fewer reports documenting injuries to short-tailed albatross in the trawl fishery, if offal were to float, it could create a stream of fish waste behind vessels that could attract a greater number of large albatross (Abraham et al. 2008). Interactions with third wire cables may occur with flying birds if they are focused on the offal and distracted from otherwise observing collision risks.

The NMFS proposed the following avoidance and minimization measures to reduce the risk of bycatch. The NMFS recommends vessels avoid areas of known seabird congregations. Most vessels are required to use of streamer lines in association with their hook-and-line gear. As previously discussed, streamer lines are a protective measure designed to reduce the likelihood of seabird bycatch by discouraging seabirds from diving at the baited hooks. To reduce the additive attraction due to discharge of offal, the EPA requires vessels to be moving while discharging seafood waste to increase the dispersal rate. The EPA permit prohibits the occurrence of substances that float as debris, scum, oil, or other matter to form nuisances on the surface, and requires surface waters to be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum-derived oils.

Overall, we expect direct threats related to interaction with gear or vessels to pose a continued risk of death or injury to short-tailed albatross. However, through the implementation of avoidance and minimization measures, we expect the injury and mortality to be reduced so that the magnitude of this effect would be relatively small.

Effects on Spectacled and Steller's Eiders

Spectacled eiders and Steller's eiders do not have the same attraction for feeding around fishing vessels as do short-tailed albatrosses. Instead, the risk to spectacled eiders and Steller's eiders from fishing vessels is strikes due to collisions with vessels that intersect their flight path,

especially at night and during inclement weather. Fishing vessels may also cause behavioral changes during critical life stages such as molting and wintering, and possibly impact spectacled eiders and Steller's eider habitat through discharge of pollutants and contaminants.

Collisions

Collisions with fishing gear, vessels, and other vertical structures generally involve one or two birds, but "bird storms" have occurred, where various species of seabirds have struck vessels while at sea. This reinitiation, for example is based on these types of events. On October 10, 2019, at least 22 spectacled eiders were taken due to a collision event with a fishing vessel near St. Lawrence Island. The event occurred at night while the vessel was in route between fishing locations. In the morning, the onboard protected species observer found 22 carcasses on deck, indicating they had encountered multiple birds. The vessel had been operating under standard lighting while in transit. After the incident the vessel operator reported they minimized the lighting for the remainder of the trip. In a separate incident on March 2, 2020, multiple sea birds were struck by the rigging of a vessel and knocked onto the deck; of those injured 3 were Steller's eiders, 2 were able to fly away, and 1 was mortally injured. The vessel was in transit and not fishing, at the time. Both of these examples of collisions occurred while vessels were moving, at night, and during fall and winter (October and March) while skies are dark in Alaska.

Flock size, as well as flight height and speed, can increase the number of eiders killed or injured during a single event. Like other species of eiders, spectacled and Steller's eiders are known to fly low and fast over water. Day et al. (2004) studied king eiders (*Somateria mollissima*) and common eiders (*S. spectabilis*) off the coast Utqiaġvik, Alaska. They found eider flock size averaged 110.4 ± 7.1 birds, mean flight altitude of 39.7 ± 2.6 feet (12.1 ± 0.8 meters) above sea level, and groundspeed velocities averaged 51.9 ± 0.2 miles (83.5 ± 0.3 kilometers) per hour. They found speeds were significantly higher with good visibility and strong winds, higher with good visibility at night than with poor visibility at night, higher with crosswinds and tailwinds than with headwinds, higher with weak headwinds than with strong ones, and higher with strong tailwinds and crosswinds than with weak ones.

Eider movement increases by up to 175 percent at night (Gall et al. 2003). Day et al. (2004) concur movement rates increase at night, especially during good visibility and frequently increase with nocturnal tailwinds. The risk of bright lights at night, especially during inclement weather, increases risk of collision and mortality events. The light increases the risk of birds colliding with vessel gear or rigging, which is difficult to see at night. In addition, weather patterns reduce visibility and the lower cloud ceiling enhances light where birds tend to fly at lower altitudes (USFWS 2018d).

The NMFS recommends, but does not require, vessel operators to minimize the use of external lighting at night, minimize the use of sodium lighting and other high-wattage light sources, and angle lights downward toward the surface of the water to reduce seabird attraction. When these measures can be implemented, they should reduce the risk of vessel strikes. However, it is

unclear how often such measures might be voluntarily implemented; as a result, we expect future bird strikes could occur, resulting in death or injury to spectacled eiders and Steller's eiders.

Behavior Modification

Short-tailed albatrosses, spectacled eiders, and Steller's eiders winter, stage, breed, and molt within or near portions of the action area. Dehnhard et al. (2019) found that common eiders (*Somateria mollissima*) exhibited displacement behaviors when small boats approached at a distance of 2,529 feet (771 meters) and flight initiation began at 582 feet (177 meters). Fishing vessels may disturb these birds, though if the disturbance is brief, it may not have a direct adverse effect. However, longer disturbances or disruptions in congregating birds could result in increased energetic expenditures, displacement from optimal feeding areas, injury, and mortality, especially for vulnerable individuals such as during feeding, wintering, molting, or when there are dependent young near adults and could result in incidental take by harassment.

The NMFS recommends, but does not require, vessels to avoid areas of known ESA-listed seabird congregations. The NMFS also has established a marine observer program to improve detection of sensitive species in the vicinity of vessels. The EPA permit prohibits the occurrence of substances that float as debris, scum, oil, or other matter to form nuisances on the surface, and requires surface waters to be virtually free from floating nonpetroleum oils of vegetable or animal origin, as well as petroleum-derived oils. When these measures are implemented, we believe they should minimize disturbance and behavior modification. However, because they are only voluntary recommendations, they will not always be followed. As a result, the potential remains for disturbance of molting and wintering eiders.

Seafood Processing Waste

The majority of seafood processing waste consists of blood, tissue, liquid, meat, viscera, oil and grease, shells, and bones. These wastes consist of solids, biochemical oxygen demand, oil and grease, and nutrients. Solid waste is ground and pumped overboard and unground sea debris and bycatch that is discharged whole. Adverse impacts on receiving water include potential reduction of dissolved oxygen in the water column, release of toxic levels of sulfide and ammonia from decaying waste, nutrient enrichment and stimulation of phytoplankton growth and alteration of the phytoplankton community, and accumulation of waste solids and fish oils on the water surface and the bottom. Potential water quality impacts may subsequently affect the biological communities present in the area of the discharge. Habitat modification, changes in prey availability, or direct threats could influence populations (Petersen et al. 1999).

The EPA will not authorize discharges to receiving waters identified as protected water resources within 1 nautical mile of critical habitats (with the exception of seasonal discharge in Unit 5), or in special areas including waters in proximity to living substrates such as submerged aquatic vegetation, kelp, and eelgrass in shallow coastal waters, generally less than 60 feet in depth. In addition, vessels are required to be moving while discharging seafood waste to increase the dispersal rate and seafood waste will be discharged into a hydrodynamically energetic marine environment. Given marine waters are in constantly motion with a combination of wind, tide,

water depth, and the upwelling action along shelf breaks that greatly that increases mixing and dispersion of discharges, we do not expect long-term effects.

Debris

Derelict fishing gear, plastics, and debris lost off of fishing vessels can accumulate. Debris that floats in the water column can be consumed by seabirds when the birds are foraging. The ingestion of plastic may hurt seabirds and can result in dehydration and starvation, intestinal blockage, internal injury, and exposure to dangerous toxins (Sievert and Sileo 1993). For example, short-tailed albatross on Torishima Island commonly regurgitate large amounts of plastic debris to their young (USFWS 2003a).

We expect fishing vessels associated with the proposed action may occasionally lose fishing gear and other debris overboard. As a result, we expect this potential effect to continue. Based on the sporadic and accidental nature of these events, it is difficult to determine the frequency and geographic distribution of this effect. However, we expect the likelihood of ESA-listed birds ingesting debris directly linked to the proposed action to be rare. Therefore, we expect the magnitude of effects related to pollution from fishing gear, plastics and debris to be minimal.

Contaminants and Oil

The potential release of contaminants and petroleum-derived oil due to fishing activities also exists. Vessels that are damaged or sink may release oil from fuel tanks. Contaminants could affect the marine environment. Furthermore, a small amount of oil can harm birds through oiling of feathers or through ingestion of prey or during preening. According to Petersen et al. (1999), during molting (and potentially when wintering) spectacled eiders are vulnerable to contact with petroleum products. Exposure in areas with large congregations of eiders could magnify adverse effects. Steller's eiders concentrate in large numbers in harbors and spectacled eiders tend to concentrate in groups of tens to groups of thousands during molting and wintering.

The NMFS recommends vessels avoid areas of known ESA-listed seabird congregations. The NMFS utilizes NMFS-certified observers to improve detection of sensitive species in the vicinity of vessels. The EPA permit prohibits the discharge of petroleum (e.g., diesel, kerosene, and gasoline) or hazardous substances into or upon the navigable waters of the U.S., adjoining shorelines, into or upon the waters of the contiguous zone, which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (EPA 2020).

In general, we anticipate discharges of contaminants are likely to be small and infrequent. However, if contaminants are discharged in areas with eider or albatross activity, the long-term effects could reduce the ability to breed and could make them more susceptible to illness. Because we expect these occurrences to be uncommon, we expect the magnitude of this effect to be relatively small.

Effects on the Action on Critical Habitat

Effects to critical habitat can occur regardless of species presence. Unit 3 and Unit 5 of spectacled eider critical habitat are expected to be traversed and fished by the GOA and BSAI groundfish fisheries. Other Units of spectacled eider and Steller's eider critical habitat are not expected to be exposed directly to fishing activities, due to accessibility, however these areas of critical habitat may be traversed or exposed to indirect effects of discharge.

Direct Effects

Fishing vessels may traverse critical habitat, disturbing marine waters essential for feeding, roosting, molting, migrating, and wintering. Seafood waste and contaminants can result in impacts to the water column and alter the benthic environment. Accumulation of solids can reduce dissolved oxygen concentrations, lead to turbidity, reduce light penetration, and can smother marine flora and fauna. Changes such as increased turbidity or modification of the benthic environment could affect prey.

The characteristics of the Bering Sea reduce the risk associated with permitted discharge through the mixing and dilution process. The hydrodynamic action, water depth, and water volume all serve to reduce the likelihood of potential accumulation of seafood waste. In addition, vessels must be moving while discharging. The EPA applies water quality standard to discharge, requires daily sea surface monitoring to document compliance with marine water quality, and to estimate the occurrence and number of ESA-listed species and their interactions with seafood discharge.

Given fishing has been occurring in proximity to these habitats, and bottom trawling is not permitted Unit 5, vessels will be moving while discharging, and the hydrodynamics of receiving waters, which create a constant mixing, we do not anticipate discharges would remain in the water column or accumulate on the seafloor such that it would change the availability of necessary elements of the critical habitat. We expect any effects to the primary constituent elements to be temporary and they should not have a lasting effect on the function of the critical habitat units.

Effects on Recovery

Short-tailed albatross

The current population growth rate of the short-tailed albatross is estimated at 8.5 percent (Sievert and Hasegawa, unpublished population model, 2017), which does not seem limited by the operation of the GOA and BSAI groundfish fisheries. There are few documented incidents of short-tailed albatrosses being injured or killed by GOA and BSAI groundfish fisheries activities. Conservation measures implemented by the fisheries, such as the use of streamer lines, has contributed to minimizing take. We do not expect the few individuals affected to contribute to a population level effect. Therefore, we do not expect any substantial effect on recovery.

Spectacled eider

There are potential impacts for spectacled eiders including collisions and disturbance during molting and wintering. Estimating risk is difficult; there are many variables associated with vessel collisions, including weather conditions, lighting on vessels, flock size, vessel traffic, and flight routes. However, we can assume as the number of vessels within eider habitat increase, the risk of collisions will increase as well.

Behavioral response to disturbance also has many variables, such as the duration and intensity of vessel traffic, and whether or not large congregations of eiders are avoided. Disturbance may interrupt normal feeding during a time when energetic needs are greater, such as during molting and wintering, and when birds flush, they may expend additional energy. If disturbance occurs often or for extended periods of time, the risk to survival would increase.

Fishing vessels will be present in critical habitat Unit 3 during molting (July to November) and in Unit 5 during wintering (October to April). Female eiders from the Yukon-Kuskokwim Delta population molt primarily in Norton Sound, Unit 3. The polynyas in Unit 5 are the only documented habitat for wintering spectacled eiders, worldwide. Fishing could disturb congregations of eiders during critical life stages. The ability to flock in (and fly among) large congregations located in ice-free areas on critical habitat is essential for spectacled eiders in wintering habitat. Long-term physical disturbance and accumulation of contaminants could reduce prey availability and increase energetic expenditure necessary for feeding.

Alteration of the marine aquatic flora and fauna in the water column, and the underlying marine benthic environment in Unit 5, including disturbance caused by bottom trawling, could affect prey availability. Unit 5 is located within the NBSRA, where bottom trawling is prohibited, except as allowed through exempted fishing permits. Without this restriction on bottom trawling, potential effects of fishing activities would need to be analyzed further for ecosystem level changes leading to reduction of conservation values of critical habitat in Unit 5, if this were to occur it could negatively impact the units' role in recovery of spectacled eiders.

Many of the recovery actions for spectacled eiders address the fisheries, including evaluating and reducing impacts from commercial fishing near St. Lawrence Island, reducing collisions, reducing contaminants and oil spills, and exploring how changing ice conditions may affect wintering populations. Proposed conservations measures include reducing lights on vessels, utilizing observers on fishing vessels whenever appropriate and possible, avoiding congregations of eiders, only permitting discharge while vessels are moving, and not permitting discharge of oil or contaminants. Additional conservations measures may provide additional opportunities to gather data on wintering populations.

There are rare observations of spectacled eiders in flocks colliding with fishing vessels and there may be more collisions that go undetected due to strikes that occur at night or carcasses that fall into the water without being counted. The strike rate is unpredictable, many years may pass without a reported strike and then many individuals may collide as a flock in one incident.

While we expect a few individuals or even a rare flock to be affected by the fishery, we do not expect this to contribute to a population level effect, because we do not expect this to occur often, and the size of the global population is assumed to be large. Therefore, we do not expect a substantial effect on recovery of spectacled eiders.

Steller's eider
The population of Steller's eiders on the Arctic Coastal Plain is just a few hundred individuals and is very low on the Yukon-Kuskokwim Delta. The population does not appear to be limited by the GOA and BSAI groundfish fisheries; there are rare documented incidents of Steller's eiders colliding with fishing vessels. Conservations measures implemented by the fisheries may provide additional opportunities to reduce collision risk associated with lighting. In addition, observers may provide opportunities to gather additional data on connectivity of Alaska- and Pacific-Russia breeding populations. We do not expect the few individuals affected to contribute to a population level effect. Therefore, we do not expect any substantial effect on recovery of Steller's eider

Summary of Effects
Injury and mortality related to vessels strikes is expected to continue to occur and may be increasing due to the changes in vessel activity related to warming ocean temperatures. Warming temperatures further north in the Bering Sea could result in more vessels in ice-free areas during times not previously accessible. Vessels follow their target fish species, many of which are also moving further north in response to warming ocean conditions. Short-tailed albatrosses have been identified in waters further north. Eider migration is influenced by ice formation and ice melt. Vessel collisions may increase in areas where spectacled eiders and Steller's eiders migrate off shore, and to and from Russia.

Overall, we expect direct threats related to interaction with gear or vessels to pose a continued risk of death or injury. There could be future risks of bird strikes resulting in risk of death or injury to short-tailed albatross, spectacled eider, and Steller's eider. However, through the implementation of avoidance and minimization measures, we expect the injury and mortality to be reduced so that the magnitude of this effect would be relatively small. The NMFS will recommend minimizing the use of external lighting at night, minimizing the use of sodium lighting and other high-wattage light sources, and angling these lights downward toward the surface of the water to reduce seabird attraction. Through the implementation of avoidance and minimization measures, we expect the injury and mortality to be a rarer occurrence and the overall effect to be reduced.

Disturbance and disruption of normal behavior patterns such as breeding, feeding or sheltering could impact short-tailed albatrosses, spectacled eiders, and Steller's eiders. The NMFS recommends vessels avoid areas of known seabird congregations. The NMFS also has established a marine observer program to improve detection of sensitive species in the vicinity of vessels. Full implementation of these measures should minimize disturbance and behavior modification caused by fisheries activities.

The majority of seafood processing waste is organic. Impacts on the receiving water and bottom accumulations are expected to be minimal and temporary. Vessels must be moving while discharging and no bottom trawling is permitted in spectacled eider critical habitat. The EPA will not authorize discharges to receiving waters that have been identified as protected water resources, critical habitats (with the exception of seasonal discharge in Unit 5), and special areas including waters in proximity to living substrates such as submerged aquatic vegetation, kelp, and eelgrass in shallow coastal waters, generally less than 60 feet (18 meters) in depth. The likelihood of impacts on the receiving water and bottom accumulations due to offshore seafood processing is low given the biodegradable nature of the waste, wide dispersion of waste over a large area (vessels are moving while discharging), and large volume of water in the action area.

We expect the magnitude of effects related to pollution from fishing gear, plastics and debris to be minimal. Discharges of contaminants are likely to be small and infrequent. However, if contaminants are discharged in areas with avian activity, the effects could reduce species health, diet, and could make them more susceptible to illness. Because we expect these occurrences to be uncommon, we expect the magnitude of this effect to be relatively small.

Critical habitat

Pollution, contaminants, changes in the benthic environment, and issues related to climate change play key roles in potentially shifting location or condition of critical habitat. If a large spill occurred, it could degrade the conservation value of the habitat. The USFWS biological opinion for the U.S. Coast Guard's plan for oil spills, details potential effects on critical habitat (USFWS 2015c). Changes in the condition of critical habitat may affect caloric intake and access to the energetic reserves to satisfy primary biological needs. This could result in reduced values of critical habitat. Given the dynamics of receiving waters and avoidance measures, we do not anticipate discharges would remain on the water, in the water column, or accumulate on the seafloor such that it would change the availability of important prey species or modify critical habitat.

CUMULATIVE EFFECTS

Cumulative effects are the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section if they require separate consultation pursuant to section 7 of the ESA.

State Managed Fisheries

State managed fisheries occur 0 to 3 nautical miles offshore, with the exception of the Tanner crab fishery, which extends into Federal waters. The salmon, herring, and shellfish State managed fisheries have the potential to overlap with short-tailed albatross, spectacled eider, and Steller's eider occurrences in State waters. However, the short-tailed albatross is a continental edge specialist. They can be common nearshore, but only where upwelling hotspots occur (Piatt et. al 2006). There is little chance of interaction between short-tailed albatross and the State

managed fisheries, except near the Aleutian Islands. Spectacled and Steller's eiders occur closer to shore, which increases the likelihood of interaction with State managed fisheries.

Increased Marine Traffic
Increased marine traffic could affect short-tailed albatrosses, spectacled eiders, and Steller's eiders through disturbance, collisions, and more significantly from accidental fuel spills. In the Chukchi and Beaufort Seas, decline in the extent of Arctic sea-ice in the summer and increase in the length of the ice-free season has prompted interest in shipping within and through Arctic waters via the Northwest Passage (Brigham and Ellis 2004). Ships operating, or that could operate in the action area, include military vessels, pleasure craft, cruise ships, barges, scientific research vessels, and vessels related to oil, gas, or mineral development.

Thousands of vessels transit the Great Circle Route through the Aleutian Islands each year and the level of use is expected to double into the next several decades (Nuka 2005, as cited in USFWS 2015). The Det Norske Veritas and ERM-West Inc (DNV and ERM 2010a) conducted an evaluation of existing and future spill risk through the Aleutians. Using models incorporating the frequency of use, the occurrence and consequences of spills, and projected future conditions, they estimated the amount of material spilled to increase by 48 to 83 percent by 2034, and frequency of accidents to increase by 11 percent. However, the average amount of material spilled per accident is expected to decline due to increasing numbers of vessels with double-hulled protection, which is now required for new tankers (DNV and ERM 2010b, as cited USFWS 2015). Increased spill risk in the Aleutian Islands will increase baseline risk of contaminant exposure for listed species. New and improved risk reduction measures have been proposed and would benefit listed species (Nuka 2005).

The risk of oil spills in the Bering and Chukchi Seas is also increasing. As sea-ice recedes due to climate change, the potential for increases in Arctic shipping continues to grow. Although spectacled eiders and Steller's eiders occur in northern waters, short-tailed albatrosses have rarely been observed in the Chukchi Sea. The reduction in sea-ice and the increasing numbers of widely ranging sub-adult short-tailed albatrosses may result in a greater number of albatrosses in Arctic waters (Day et al. 2013; Gall et al. 2013; as cited USFWS 2015), where they could be exposed to petroleum products spilled in Arctic shipping accidents.

The risk of spills and potential for impacts exist. Smaller spills generally have localized effects and large spills may have widespread impacts. It is unlikely a spill would raise concerns for the well-being of the populations.

CONCLUSION

Short-tailed Albatross
The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and

their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of short-tailed albatross status as the basis to assess the overall effect of the proposed action on the species.

Reproduction
Short-tailed albatrosses do not nest in the action area, and there is no suitable nesting habitat in the action area. Loss of a few individual short-tailed albatrosses will not measurably affect overall short-tailed albatross reproduction.

Numbers
Although the proposed activities may remove a small number of individual short-tailed albatross from the breeding population, the population is increasing at a rate of approximately 8.5 percent per year (Sievert and Hasegawa, unpublished population model, 2017). Thus, the loss of a small number of individuals would represent a very small percentage of the total population, and these individuals would likely be replaced during the future breeding cycles. Therefore, we do not expect the proposed actions to have a meaningful effect on the numbers of short-tailed albatross.

Distribution
The loss of a small number of individual short-tailed albatross from the population will not measurably affect the species' distribution. We do not expect the short-term disturbance of short-tailed albatross over a small geographic area due to fishing activities to change the distribution of the population as a whole in the North Pacific.

Recovery
We do not expect the project will have a meaningful effect on the recovery of short-tailed albatross. Avoidance measures and recovery actions will be employed by the GOA and BSAI groundfish fisheries. The information provided by the GOA and BSAI groundfish fisheries and NMFS will continue to contribute to information about fisheries and short-tailed albatross interactions.

After reviewing the current status of the short-tailed albatross, the environmental baseline for the action area, the effects of the proposed GOA and BSAI groundfish fisheries and the cumulative effects, it is the USFWS's biological opinion that the GOA and BSAI groundfish fisheries, as proposed, is not likely to jeopardize the continued existence of the short-tailed albatross.

Spectacled Eider
The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the spectacled eider status as the basis to assess the overall effect of the proposed action on the species.

Reproduction
Spectacled eiders do not nest in the action area and we do not expect the proposed actions to affect nesting behavior. We do not expect the loss of a few individual spectacled eiders to measurably affect the overall reproduction of the spectacled eider population.

Numbers
The wintering population is estimated to be greater than 350,000 (Larned et al. 2012). The proposed activities may remove a small number of individual spectacled eiders from the breeding population. We expect the loss of a small number of spectacled eiders over time to represent a very small percentage of the total population, and these individuals will likely be replaced during the future breeding cycles.

Distribution
The loss of a small number of individual spectacled eiders from the population will not measurably affect the species' distribution. The short-term disturbance of spectacled eiders due to fishing activities and vessels will not change the distribution of the population as a whole.

Recovery
We do not expect the project to have a meaningful effect on the recovery of spectacled eiders. The GOA and BSAI groundfish fisheries will employ avoidance measures such as managing lighting to reduce collisions. The information provided by the GOA and BSAI groundfish fisheries and NMFS will continue to contribute to information about fisheries and spectacled eiders interactions.

After reviewing the current status of the spectacled eider, the environmental baseline for the action area, the effects of the proposed GOA and BSAI groundfish fisheries and the cumulative effects, it is the USFWS's biological opinion that the GOA and BSAI groundfish fisheries, as proposed, are not likely to jeopardize the continued existence of the spectacled eider.

Steller's eider
The regulatory definition of "to jeopardize the continued existence of the species" focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the Steller's eider status as the basis to assess the overall effect of the proposed action on the species.

Reproduction
Steller's eiders do not nest in the action area. We do not expect the loss of a few individual Steller's eiders to measurably affect the overall reproduction of the Steller's eider population.

Numbers
The Alaska-breeding population is just a few hundred individuals, the majority of Steller's eiders in the project area are from the Russian-Pacific population (USFWS 2019b). The proposed

activities may remove a small number of individual Steller's eiders. The likelihood of individuals lost being from the Alaska-breeding population is low.

Distribution
The loss of a small number of individual Steller's eiders from the population will not measurably affect the species' distribution. The short-term disturbance of Steller's eiders due to fishing activities and vessels will not change the distribution of the population as a whole.

Recovery
We do not expect the project to have a meaningful effect on the recovery of Steller's eider. The population does not appear to be limited by the GOA and BSAI groundfish fisheries and there are conservation measures being put into place that are consistent with the recovery plan actions.

After reviewing the current status of the Steller's eider, the environmental baseline for the action area, the effects of the proposed GOA and BSAI groundfish fisheries and the cumulative effects, it is the USFWS's biological opinion that the GOA and BSAI groundfish fisheries, as proposed, is not likely to jeopardize the continued existence of the Steller's eider.

Spectacled Eider Critical Habitat
Permit restrictions will limit effects of seafood waste and habitat modification within recovery units. Given the dynamics of receiving waters and avoidance measures, we do not anticipate discharges would remain in the water column or accumulate on the seafloor such that it would change the availability of important prey species or modify critical habitat.

After reviewing the current status of the critical habitat of spectacled eider, the environmental baseline of critical habitat for the action area, the effects of the proposed GOA and BSAI groundfish fisheries on critical habitat, and the cumulative effects, it is the USFWS biological opinion that the GOA and BSAI groundfish fisheries action, as proposed, is not likely to result in the destruction or adverse modification of critical habitat of the spectacled eider.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is further defined by the USFWS to include significant habitat modification or degradation that results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the USFWS as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." Incidental take is defined as "take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Under the terms of section 7(b)(4) and section

7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

In June 2015, the USFWS finalized new regulations implementing the incidental take provisions of section 7(a)(2) of the ESA. The new regulations also clarify the standard regarding when the USFWS formulates an Incidental Take Statement [50 CFR 402.14(g)(7)], from "…if such take may occur" to "…if such take is reasonably certain to occur." This is not a new standard, but merely a clarification and codification of the applicable standard that the USFWS has been using and is consistent with case law. The standard does not require a guarantee that take will result; only that the USFWS establishes a rational basis for a finding of take. The USFWS continues to rely on the best available scientific and commercial data, as well as professional judgment, in reaching these determinations and resolving uncertainties or information gaps.

We anticipate that some short-tailed albatrosses, spectacled eiders, and Steller's eiders could be taken as a result of the proposed action. We expect the incidental take for all three species to be in the form of injury or death caused by vessel strikes or interactions with vessel gear. We cannot quantify the precise number of short-tailed albatrosses, spectacled eiders, and Steller's eiders that may be taken as a result of the actions that the NMFS and EPA have proposed because short-tailed albatrosses, spectacled eiders, and Steller's eiders occur in different areas depending on the season. Risks to these species not only depend on the season but also on potential intersection of vessels routes with migration routes, and risk of strikes increase with rough weather, darkness, fog, and vessel lights. The protective measures proposed by the NMFS and EPA are likely to minimize the risk of mortality or injury to most individuals. However, some mortality or injury may go undetected, for example, finding a dead or injured albatross or eider is unlikely if it's dark, they are dragged underwater, fall into the water, or fall behind a vessel due to a vessel strike while moving.

Consequently, we are unable to reasonably anticipate the actual number of short-tailed albatrosses, spectacled eiders, and Steller's eiders that would be taken by the proposed project; however, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to short-tailed albatross, spectacled eider, and Steller's eider would likely be low given the nature of the proposed activities, and we, therefore, anticipate that take of short-tailed albatross, spectacled eider, and Steller's eider would also be low. We also recognize that for every short-tailed albatross, spectacled eider, and Steller's eider found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level we are anticipating that the actual take would be higher and we set the number below that level. Similarly, for estimating the number of short-tailed albatrosses, spectacled eiders, and Steller's eiders that would be taken by vessel and seafood waste interaction, we cannot predict how many may be encountered for reasons stated earlier.

We have determined the take estimate for the NMFS and EPA related fishing activities by using the 2015 biological opinion take estimates for short-tailed albatross (USFWS 2015). We have

set take estimates based on reported take of spectacled eiders based on take reported in association with the GOA and BSAI groundfish fisheries. Finally, we estimated take for Steller's eiders based on actual reports of injured and dead Steller's eiders reported by the NMFS in association with the GOA and BSAI groundfish fisheries.

The USFWS anticipates a yearly reported take of three short-tailed albatrosses as a result of this continuing action. The incidental take is expected to be in the form of injury or mortality, due to birds drowned as a result of encounters with hook and line groundfish gear, or taken by collision with trawl gear, including the third wire and warp cables. To account for interannual variability in actual take levels, a floating 2-year period will be used to quantify the total reported take in each 2-year take average. The reported take should not exceed six albatrosses in a 2-year period.

The USFWS anticipates reported take of up to 25 spectacled eiders over a 4-year period as a result of this action. The incidental take is expected to be in the form of injury or mortality, due to birds taken by collision with gear and fishing vessels. The NMFS indicated fishing activities have been moving further into the North Bering Sea since 2016. Over the 4-year period, from 2016 to 2020, one report was made of 22 spectacled eiders taken in association with the GOA and BSAI groundfish fisheries. Due to EPA's discharge permits proposed within Unit 5 of spectacled eider critical habitat, June 10 to December 31, and the overlapping wintering spectacled eider use October to December, the number of vessels in this area may increase the risk of collisions. To account for interannual variability in actual take levels, an estimate of 25 spectacled eiders will be used to quantify the total take in each 4-year period. The reported take should not exceed 25 spectacled eiders in a floating 4-year period.

The USFWS anticipates a yearly reported take of up to three Steller's eiders as a result of this action. The incidental take is expected to be in the form of injury or mortality, due to birds taken by collision with gear and fishing vessels. In 2020, the NMFS reported an incident of collision where three Steller's eiders were identified after striking a vessel, two flew away and one died. There has been just one other report in 2014 of a single mortality of a Steller's eider related to the GOA and BSAI groundfish fisheries. Over a 6-year period, from 2014 to 2020, four Steller's eiders from the listed population potentially could have been taken in association with the GOA and BSAI groundfish fisheries. To account for interannual variability in actual take levels, an estimate of three spectacled eiders will be used to quantify the total take in each 4-year period. The reported take should not exceed three Steller's eiders in a floating 4-year period.

If the anticipated take of short-tailed albatross, spectacled eider, or Steller's eider is exceeded, the NMFS and/or EPA should contact our office immediately to reinitiate formal consultation. Project activities that are likely to cause additional take should cease during this review period because the exemption provided under section 7(o)(2) would lapse and any additional take would not be exempt from the section 9 prohibitions.

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary, and must be undertaken by NMFS and EPA or made binding conditions of any grant or permit issued to the (applicant), as appropriate,

for the exemption in section 7(o)(2) to apply. The NMFS and EPA have a continuing duty to regulate the activity covered by this Incidental Take Statement. If the NMFS or EPA (1) fails to assume and implement the terms and conditions or (2) fails to require the applicants to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the NMFS and EPA must report the progress of the action and its impact on the species to the USFWS as specified in the Incidental Take Statement [50 CFR 402.14(i)(3)].

The USFWS believes the following reasonable and prudent measures (RMPs**)** are necessary and appropriate to minimize the impacts of the incidental take of short-tailed albatross, spectacled eiders, and Steller's eiders:

RPM 1: The NMFS and EPA will ensure the amount and form of incidental take of short-tailed albatross, spectacled eiders, and Steller's eiders is commensurate with the analysis contained within this biological opinion by coordinating with the USFWS to develop and implement strategies to avoid and minimize bird collisions.

RPM 2: The NMFS (and EPA if it involves discharge) shall monitor and report all observed, reported, and estimated takes to the USFWS, and report on the efficacy of avoidance and minimization measures to reduce interactions of vessels and gear with short-tailed albatross, spectacled eiders, and Steller's eider.

RPM 3: The NMFS shall convene a multi-stakeholder working group as an advisory body to the NMFS and the USFWS for the purposes of reducing fishery interactions with short-tailed albatross, spectacled eiders, Steller's eiders, and other seabirds.

RPM 4: The NMFS shall facilitate the processing of injured and salvage of dead short-tailed albatross, spectacled eiders, and Steller's eiders taken by the GOA and BSAI groundfish fisheries. Because of their rarity, every effort should be made to retain short-tailed albatross, spectacled eiders, and Steller's eiders carcasses for scientific and educational purposes.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the NMFS and EPA must comply with the following Terms and Conditions (T&C), which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are non-discretionary.

The following T&Cs implement **RPM 1**:

T&C 1 for **RPM 1**: The NMFS and EPA will coordinate with USFWS regarding strategic offal discard, and other fishing practices that could attract or habituate seabirds to fishing vessels. If new analysis, qualitative assessments, or other information leads to identification of how fishing practices may be modified to reduce potential take of short-tailed albatross, the NMFS and EPA will meet with USFWS to discuss how to proceed.

T&C 2 for **RPM 1:** The NMFS and/or EPA shall provide guidance to observers and the GOA and BSAI groundfish fisheries on how to report encounters with threatened and endangered species and how to monitor species and report take, Appendix 2.

T&C 3 for **RPM 1**: Any best management plans developed in association with the EPA discharge permit should be submitted to the USFWS for review to ensure adequacy in avoiding and minimizing the risk of take.

T&C 4 for **RPM 1**: The NMFS will recommend that to the maximum extent practicable vessels will minimize the use of external lighting at night and avoid the use of sodium lighting and other high-wattage light sources, except when necessary for vessel and crew safety. The NMFS will also recommend that all lights should be angled or shielded downward toward the surface of the water, except when necessary for safe vessel operation.

The following T&Cs implement **RPM 2**:

T&C 1 for **RPM 2**: The NMFS and/or EPA shall monitor and report all observed, reported, and estimated takes to the USFWS. If discharge was involved in the incidental take, the report will provide those details.

T&C 2 for **RPM 2**: The NMFS and/or EPA shall report on the efficacy of avoidance and minimization measures to reduce interactions of vessels and gear with short-tailed albatrosses, spectacled eiders, and Steller's eiders.

T&C 3 for **RPM 2**: The NMFS and/or EPA shall ensure, if incidental take occurs, discussions are held with participants in the involved fisheries to obtain their input to identify potential means for reducing or eliminating the take.

The following T&C implements **RPM 3**:

T&C 1 for **RPM 3**: The NMFS shall lead a working group, which shall be advisory group responsible for review of new information and developing recommendations regarding changes to the Alaskan groundfish fishery that shall reduce risk of harm to short-tailed albatross, spectacled eiders, Steller's eiders, and other seabirds.

1. The NMFS shall update membership for the working group.
2. The NMFS shall work with the North Pacific Fishery Management Council and the USFWS to provide points of contact and participate in the working group.
3. The working group shall at a minimum convene on a biennial basis to consider all new information.
4. The working group shall update, and NMFS shall adopt, the final terms of reference for the working group. These terms shall document the purpose and structure of the working group, the basis for key recommendations, staff points of contact and their roles and responsibilities, resources needed to accomplish the working group purpose, and a breakdown of anticipated work schedules (e.g., for biennial reporting and completing a future consultation following a group recommendation reinitiate).

5. The working group's recommendations for mitigating bycatch, and other seabird interactions as applicable, shall be made available to the NMFS, EPA, USFWS, and the Council.
6. With NMFS as lead, the working group shall be an advisory group responsible for review of new information, and developing recommendations regarding changes to the Alaskan Fisheries to reduce risk of harm to ESA-listed seabirds. Example recommendations may include developing new analyses or reports, changes to sampling protocols, additional conservation measures to implement; updating species risk assessments, and advise if reinitiation is warranted.

The following T&C implements **RPM 4**:

T&C 1 for **RPM 4**: The NMFS shall coordinate with the USFWS for processing injured and salvaging carcasses of short-tailed albatross, spectacled eiders, and Steller's eiders. The EPA shall be notified if take was related to the discharge permit.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), the NMFS and EPA must report the progress of the action and its impact on the species to the USFWS as specified in this Incidental Take Statement.

1. The NMFS will require that all short-tailed albatrosses, spectacled eiders, and Steller's eiders injured or killed be reported immediately to the NMFS (and subsequently to the USFWS).
2. The NMFS shall advise fishery observers and fishermen that every effort should be made to recover and retain any dead short-tailed albatrosses, spectacled eiders, and Steller's eiders regardless of cause of death or gear type, and regardless of whether the mortality occurs in a sampled portion of the haul or a collision if possible. More details are provided below, under the section titled *Disposition of Injured and Dead Specimens*, including what to do if carcasses cannot be retained.
3. The NMFS will then inform the USFWS of any mortality within two (2) business days of the initial reporting. The following notifications should be mad so that the USFWS is aware an incident occurred and the vessel may possess evidence of dead or injured ESA-listed species:
   - Anchorage Fish and Wildlife Conservation Office, Field Supervisor: 907-271-2888, if calling after normal business hours leave a message **and**
   - Alaska U.S. Fish and Wildlife Service Law Enforcement Office: 800-858-7621

   The NMFS and/or EPA will notify the USFWS if the take was related to the discharge permit.
4. The NMFS will provide to the USFWS, on an annual basis, bycatch estimates of the number of birds taken by species in the hook-and-line and trawl fisheries. The bycatch estimates should also explore individual vessel bycatch estimates as methods are developed and refined by the NMFS. Reports should be sent to the Anchorage Fish and Wildlife Conservation Office, Field Supervisor, 4700 BLM Road, Anchorage, Alaska, 99507, by June of the following year.

DISPOSITION OF INJURED AND DEAD SPECIMENS

As part of this Incidental Take Statement and pursuant to 50 CFR 402.14(i)(1)(v), injured or dead short-tailed albatross, spectacled eiders, and Steller's eiders will be processed as follows. The NMFS and/or EPA must take care in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. The NMFS and/or EPA must transport injured animals to a qualified veterinarian or wildlife rehabilitation center. Should any treated short-tailed albatross, spectacled eider or Steller's eider survive, the NMFS must contact the USFWS regarding the final disposition of the animal(s).

Injured short-tailed albatrosses, spectacled eiders, and Steller's eiders

If an injured or sick short-tailed albatross, spectacled eiders, and Steller's eiders is located and it is alive, it shall be released overboard if it looks normal and exhibits all of the following traits: 1) the bird is capable of holding its head erect, and the bird response to noise and motion stimuli; 2) the bird breathes without noise; 3) the bird can flap both wings, and it can retract the wings to a normal folded position on the back; 4) the bird is capable of elevating itself to stand on both feet, with its toes pointed in the proper position (forward); and 5) bird is waterproof (water beads up on feathers).

Live injured short-tailed albatrosses, spectacled eiders, and Steller's eiders that do not meet the criteria for release, shall be retained in a safe location, as directed by the following contacts. If an injured or sick short-tailed albatross, spectacled eider, or Steller's eider is being considered for rehabilitation, call the Alaska Sea Life Center stranded animal hotline: 1-888-774-7325. Then inform the USFWS at 1-800-858-7621.

Dead albatrosses and eiders

The NMFS will request all fishing vessels temporarily keep all unidentified albatrosses and eiders taken until the observer has had the opportunity to identify as a listed or non-listed species.

If no observer is on board, unidentified albatross and eider carcasses should be retained for future identification, or, at minimum, pictures documenting the species should be taken for verification, a report will be filled out, and the carcass processed as detailed below:

1. Three photos should be taken: one of the front with wings outstretched; one from the back with wings outstretched; and one of the head and beak, preferably near a measurement board or other reference of size for the beak.
2. A report of the threatened and endangered species encounter should include the name of the person making the report, name of the vessel (optional), date of encounter, time, coordinates, photographs, species, cause of death or injury, if known, and any other pertinent information. The report may be made on the USFWS threatened and endangered species encounter form in Appendix 2.

3. If an observer is not on board, a verbal report will be called-in and a written report will be made out as described above and the carcass immediately frozen, or kept as cold as possible. Due to the rarity of these species, every effort should be made to salvage the carcass. The carcass will labeled with the vessel name, latitude and longitude, assumed cause of death, and the numbers and colors of any leg bands (leg bands should be left attached). If unable to keep the carcass, take photos and provide the information described in numbers 1 and 2 above. A report should be submitted using the form in Appendix 2.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Conservation recommendations

1. We recommend avoiding areas with congregations of spectacled eiders and/or Steller's eiders to the maximum extent practicable. From limited telemetry data – in late summer/fall the eiders are very patchy in distribution. Most of the population may occur in less than 5 percent of the critical habitat area at any given time. Thus, you may transit large areas and not see any eiders. However, when a flock is encountered it may be very large. Therefore, any interaction could disproportionately affect large numbers.
2. Injury and other interactions are generally area and weather dependent. If there are large number of eiders or other seabirds around, the risk can be very high. Under such circumstances, we recommend avoiding the area, reducing speeds, and reducing lights to the maximum extent possible. We further recommend that observers watch for birds flying around if it is night and lights are on.
3. If large numbers of short-tailed albatross are present prior to the set, vessel operators should consider halting operations and moving to another location. If the set is made with short-tailed albatross in the vicinity, vessel operators need to ensure that mitigation measures are deployed, that they meet the NMFS performance standards, and that albatross are deterred from access to the baited hooks. If large numbers of short-tailed albatross are present while gear is being hauled, we recommend that offal discard be done strategically either from behind the haul station or the opposite side of the vessel.
4. When traversing in or near critical habitat of spectacled eiders and Steller's eiders, we recommend reducing vessel speed to 8 knots or less in order to avoid interactions, especially interactions with wintering or molting spectacled eiders.
5. If an observer is not on board, we request general observations of short-tailed albatross, spectacled eiders, and Steller's eiders be reported on form provided in Appendix 2. This helps the USFWS to better understand risks and improve guidance and know what to expect in the future.

The USFWS requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the reinitiation request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact Ms. Jennifer Spegon of my staff at 907-271-2768, or by e-mail at jennifer_j_spegon@fws.gov.

Sincerely,

STEWART COGSWELL

Digitally signed by STEWART COGSWELL
Date: 2021.03.08 11:35:08 -09'00'

Stewart Cogswell,
Field Supervisor

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Appendix 1. Reported short-tailed albatross mortalities associated with Pacific fishing activities since 1983 (Eich et al. 2016, as cited in NMFS 2020, updated by USFWS 2020).

Date	Fishery	Observer Program	In sample*	Bird age	Location	Source
7/15/1983	Net	No	n/a	4 months	Bering Sea	USFWS (2014)
10/1/1987	Halibut	No	n/a	6 months	Gulf of Alaska	USFWS (2014)
8/28/1995	IFQ sablefish	Yes	No	1 year	Aleutian Islands	USFWS (2014)
10/8/1995	IFQ sablefish	Yes	No	3 years	Bering Sea	USFWS (2014)
9/27/1996	Hook-and-line CP targeting Pacific cod	Yes	Yes	5 years	Bering Sea	USFWS (2014)
4/23/1998	Russian salmon drift net	n/a	n/a	Hatch-year	Bering Sea, Russia	USFWS (2014)
9/21/1998	Hook-and-line CP targeting Pacific cod	Yes	Yes	8 years	Bering Sea	USFWS (2014)
9/28/1998	Hook-and-line CP targeting Pacific cod	Yes	Yes	Sub-adult	Bering Sea	USFWS (2014)
7/11/2002	Russian**	n/a	n/a	3 months	Sea of Okhotsk, Russia	USFWS (2014)
8/29/2003	Russian demersal hook-and-line	n/a	n/a	3 years	Bering Sea, Russia	USFWS (2014)
8/31/2006	Russian**	n/a	n/a	1 year	Kuril Islands, Russia	USFWS (2014)
8/27/2010	Hook-and-line CP targeting Pacific cod	Yes	Yes	7 years	Bering Sea/Aleutian Islands	USFWS (2014)
9/14/2010	Hook-and-line CP targeting Pacific cod	Yes	Yes	3 years	Bering Sea/Aleutian Islands	USFWS (2014)
4/11/2011	Sablefish demersal hook-and-line	Yes	Yes	1 year	Pacific Ocean, Oregon	USFWS (2014)
10/25/2011	Hook-and-line CP targeting Pacific cod	Yes	Yes	1 year	Bering Sea	USFWS (2014)
5/24/2013	Hook-and-line, seabird bycatch mitigation research	No	n/a	1 year	Pacific Ocean, Japan	USFWS (2014)
9/7/2014	Hook-and-line CP targeting Greenland turbot	Yes	No	5 years	Bering Sea	NMFS Informational Bulletin 49 (2014); S. Fitzgerald, NMFS AFSC, June 2015, pers. comm.

Date	Fishery	Observer Program	In sample*	Bird age	Location	Source
9/7/2014	Hook-and-line CP targeting Greenland turbot	Yes	Yes	Sub-adult	Bering Sea	NMFS Informational Bulletin 52 (2014); S. Fitzgerald, NMFS AFSC, June 2015, pers. comm.
12/16/2014	Hook-and-line CP targeting Pacific cod	Yes	Yes	Immature	Bering Sea	NMFS Informational Bulletin 31 (2015); S. Fitzgerald, NMFS AFSC, June 2015, pers. comm.
9/26/2020	Hook-and-line CP targeting Pacific cod	Yes	Yes	9 years	Bering Sea	NMFS Informational Bulletin 80 (2020)S. Fitzgerald, NMFS AFSC, September 2020, pers. comm.
10/15/2020	Hook-and-line CP targeting Pacific cod	Yes	Yes	2 years	Bering Sea	NMFS Informational Bulletin 80 (2020) S. Fitzgerald, NMFS AFSC, September 2020, pers. comm.

* “In sample” a specimen was in a sample of catch analyzed by a fisheries observer.
**Specifics regarding the type of fishery are unknown.

Appendix 2.

Threatened & Endangered Bird Species Encounter Reporting Form

(e.g., Short-tailed albatross, Spectacled eider, Steller's eider)

Your Name, Address, Phone:	Vessel Name and ADF&G No.:
Check one: ☐ Fisherman ☐ Fishery Observer ☐ Non Fishery-related boater ☐ Non Fishery-related Scientist ☐ Other (Explain)	Date of Encounter(s): Weather, daylight level, lights on vessel when encounter occurred.
If bird(s) observed from a fishing vessel, which fishery was this vessel participating in when encounter occurred?	Location or Geographic Coordinates of Encounter(s):
Briefly describe the bird(s).	How many did you see of each? ☐ Adult bird(s) ☐ Immature bird(s) ☐ Uncertain of age

Were birds Injured or Killed? If Yes, list number of each species and sex, approximate time observed (e.g., morning, afternoon, night), and how they were encountered, injured or killed (e.g., struck rigging, came up in gear, landed on vessel to seek refuge).

Additional sightings:

Date	Coordinates	Number Seen	Number injured or killed	Comments

Please return completed form to:
Ecological Services Branch
USFWS Anchorage Fish and Wildlife Conservation Office
4700 BLM Road
Anchorage, Alaska, 99507
(ak_fisheries@fws.gov)